ORDER NO. HAD8506124A4

Service Manual

Cassette Deck

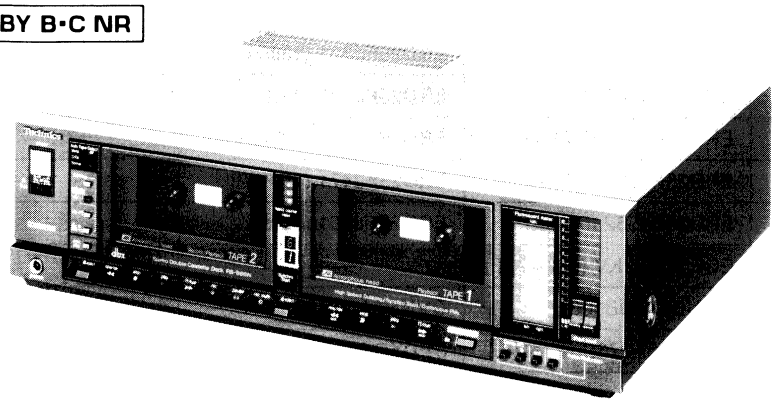
RS-B66W

dbx*/Dolby B-C NR,
6×-speed Tape-to-Tape Recording
Double Cassette Deck

** DOLBY B•C NR

Color

(K)...Black Type



Color	Area
(K)	[PA]....Far Fast PX.
(K)	[PE]....European Military.

RS-8R MECHANISM SERIES

- Please use this manual together with the service manual for model No. RS-B66W ([XA] mark areas) order No. HAD85022416C8.
- This Service Manual indicates the main differences between; original RS-B66W ([XA] mark areas) and RS-B66W ([PA][PE] mark areas).

SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads (TAPE 1) PLAY	AX head
(TAPE 2) REC/PLAY	AX head
Erasing	Double-gap ferrite head
Motors	
Capstan	1 motor
Reel drive	2 motor
Mechanism	2 motor
Recording system	AC bias
Bias frequency	300 kHz
Erasing system	AC bias
Tape speed	4.8 cm/sec.
Frequency response	
Metal	20 Hz–21,000 Hz
	30 Hz–20,000 Hz (DIN)
	30 Hz–19,000 Hz (±3 dB)
CrO_2	20 Hz–20,000 Hz
	30 Hz–19,000 Hz (DIN)
	30 Hz–18,000 Hz ±3 dB
Normal	20 Hz–19,000 Hz
	30 Hz–18,000 Hz (DIN)
	30 Hz–17,000 Hz ±3 dB
Dynamic Range (with dbx in)	110 dB (1 kHz)
S/N (Signal level = max. recording level, CrO_2 type tape)	
dbx in	92 dB (A weighted)
Dolby C NR in	75 dB (CCIR)
Dolby B NR in	67 dB (CCIR)
NR out	57 dB (A weighted)
Wow and flutter	0.06% (WRMS)
	±0.1% (DIN)
Max. Input level improvement (with dbx in)	10 dB
Fast Forward and Rewind Time	Approx. 85 seconds with C-60 cassette tape
Input sensitivity and impedance	
LINE	60 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/2.5 kΩ
HEADPHONES	80mV/8Ω
Power consumption	38 W
Power supply	AC 50 Hz/60 Hz
	110 V/127 V/220 V/240 V, preset power voltage 240 V for Europe, 127 V for other area
Dimensions (W×H×D)	430×110×325 mm
Weight	6.9 kg

Design and specifications are subject to change without notice.

*The term dbx is a registered trademark of dbx Inc.

**'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Technics

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P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105, Japan

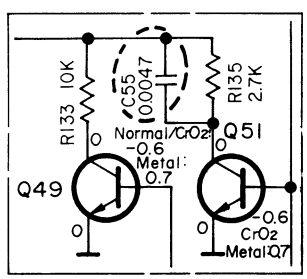
PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual RS-B66W ([XA] mark areas) to conform to the changes shown herein.
If new part numbers are shown, be sure to use them when ordering parts.

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

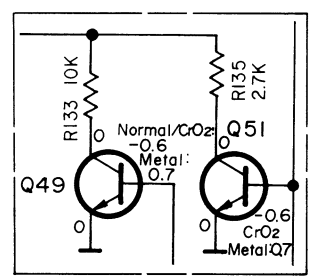
Ref. No.	Part Name & Description	Part Numbers		Remarks
		For [XA] mark areas.	**For [PA][PE] mark areas.**	
R55, 56	Resistors	ERD25FJ472 (4.7kΩ)	**ERD25FJ432 (4.3kΩ)**	
R248	Resistor	ERD25FJ221 (220Ω)	**ERD25FJ331 (330Ω)**	
R251	Resistor	ERD25FJ391 (390Ω)	**ERD25FJ331 (330Ω)**	
R306	Resistor	ERD25FJ100 (10Ω)	**ERD25FJ330 (33Ω)**	
R307	Resistor	ERD25FJ222 (2.2kΩ)	**ERD25FJ122 (1.2kΩ)**	
R308	Resistor	ERD25FJ222 (2.2kΩ)	**ERD25FJ471 (470Ω)**	
R309	Resistor	ERD25FJ562 (5.6kΩ)	**ERD25FJ561 (560Ω)**	
C55, 56	Capacitor	ECFDD472KV (0.0047μF)	——	Deleted
VR301	Variable Resistor	QVNB3A00B103	**QVNB3A00B332**	
RL1	Relay	SFDYG5A273P	**SFDYG5A237P**	
17	Fuse Holder	SJT347	**QTF1054**	⚠
A2	Instruction Book	SQF12313	**SQF12540**	

■ SCHEMATIC DIAGRAM

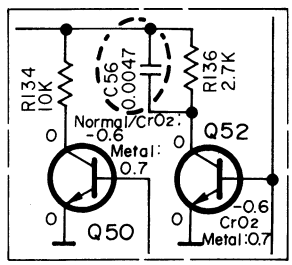


For [XA] mark areas.

(Deletion)



For [PA][PE] mark areas.



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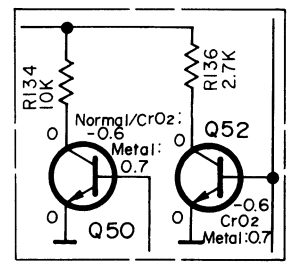
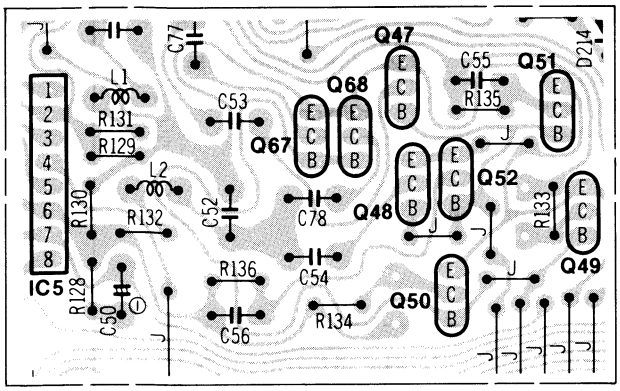


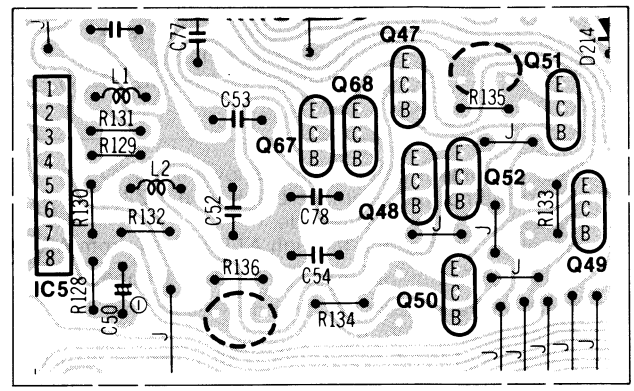
For [PA][PE] mark areas.

■ PRINTED CIRCUIT BOARD

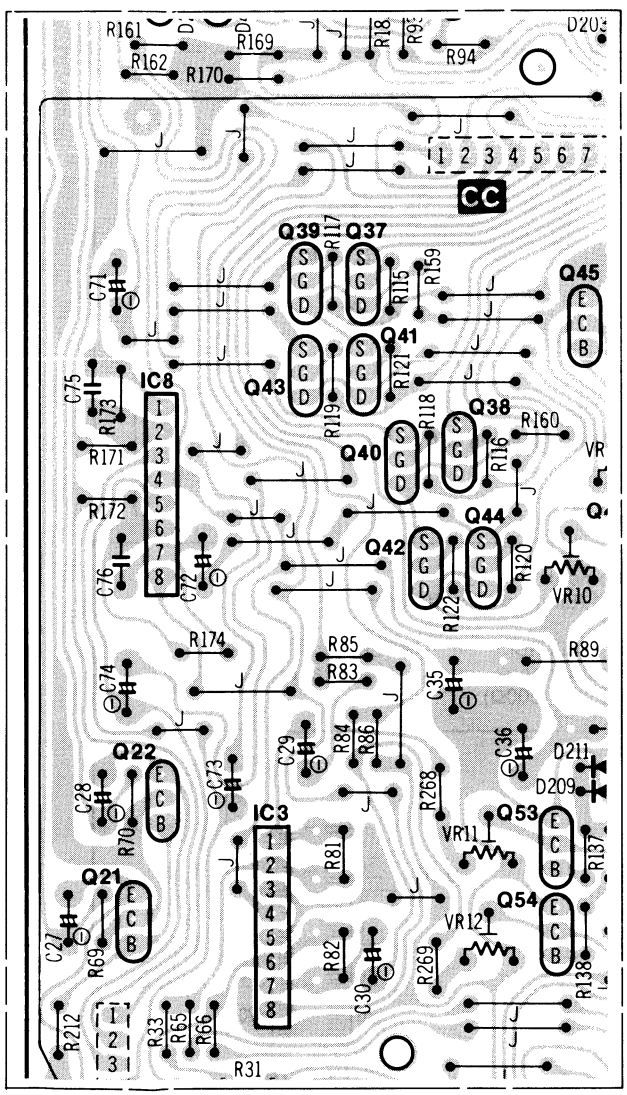


For [XA] mark areas.

(Deletion)

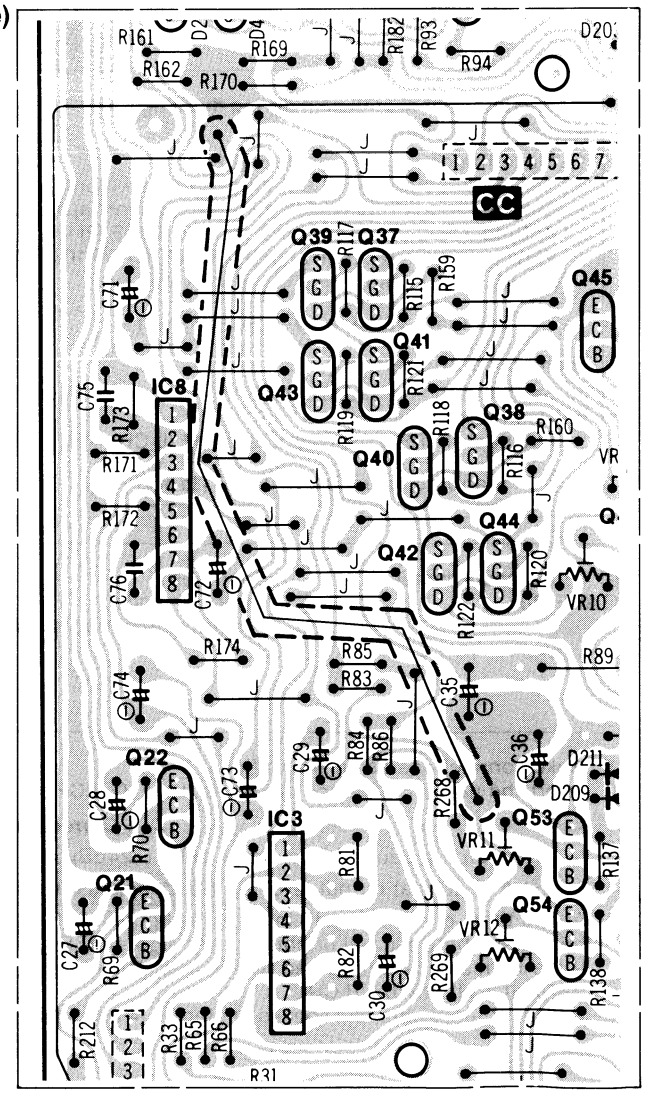


For [PA][PE] mark areas.



For [XA] mark areas.

(Difference)



For [PA][PE] mark areas.

■ MEASUREMENT AND ADJUSTMENT METHODES

Ⓖ Overall gain (TAPE [2])

Condition:
- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Standard input level; LINE IN ...−24±4dB (63mV)

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- Test tape (reference blank tape) ...QZZCRA for Normal
- AF oscillator
- Oscilloscope
- **Test tape ...QZZCFM (315Hz, 0dB)** — **Addition**

1. Test equipment connection is shown in fig. 17.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (−24dB) from AF oscillator, to LINE IN. — **Correction**
5. Adjust ATT until monitor level at **Headphones output** becomes **0.525V**. — **Correction**
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.4V±22mV.
7. If measured value is not 0.4V±22mV, adjust it by using VR9 (L-CH) or VR10 (R-CH).
8. Repeat from step (2).

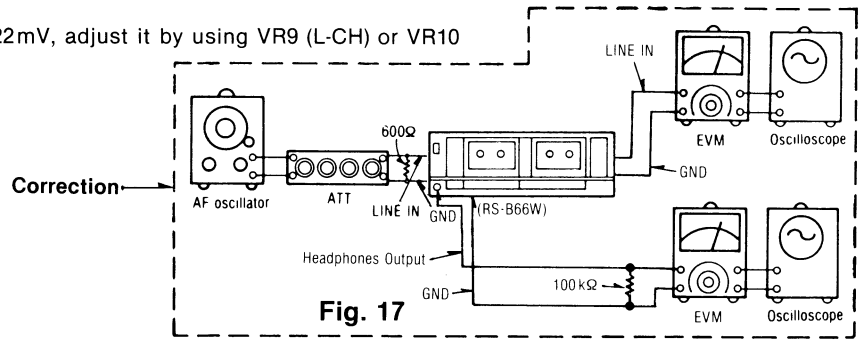


Fig. 17

Addition

• Adjustment of overall gain during dubbing

Normal speed adjustment

1. Make the connection as in Fig. 17-1.
2. Set the dubbing speed switch to ×1 mode (normal speed).
3. Set the standard playback gain adjustment tape QZZCFM (315Hz, 0dB) to TAPE [1], and normal tape to TAPE [2] when dubbing.
4. Playback TAPE [2], then adjust VR9 (L-CH) {VR10 (R-CH)} so that the output level is within the standard value.

Standard value: 0.4V±0.5dB (11mV)

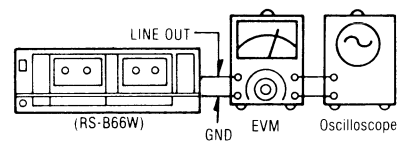


Fig. 17-1

High speed Adjustment

5. Set the dubbing speed switch to ×6 mode (6 times higher speed).
6. Operate the step 3.
7. Playback TAPE [2], then adjust VR11 (L-CH) {VR12 (R-CH)} so that the output level is within the standard value.

Standard value: 0.4V±0.5dB (11mV)

Ⓗ Fluorescent meter (TAPE [2])

Condition:
- Record mode
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)...QZZCRA

1. Make connections as shown in fig. 17.
2. Insert the normal reference blank test tape (QZZCRA).
3. In the recording pause mode, apply 1kHz (−24dB) to LINE IN. — **Correction** **Correction**
4. Adjust ATT so that output level at **Headphones output** is **0.525V**.
5. At this time, check that 0dB indicator is lighted halfway (intermediate brightness between full brightness and light-out: See fig. 18).
6. If the indicator is not lighted halfway as described in step 4, adjust VR701 (L-CH), VR702 (R-CH).
7. Repeat adjustments and checks at steps 3, 4 and 5 two or three times.

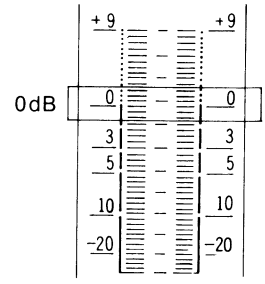


Fig. 18

PAPE
Printed in Japan
850600830 Ⓗ M.S/A.H

ORDER NO. HAD85022416C8

Service Manual

Cassette Deck

RS-B66W

dbx*/Dolby B-C NR,
6×-speed Tape-to-Tape Recording
Double Cassette Deck

** DOLBY B•C NR

Color

(K)...Black Type

Color	Area
(K)	[E].....All European areas except United Kingdom.
(K)	[EH] ...Holland.
(K)	[XA]....Asia, Latin America, Middle East and Africa areas.
(K)	[XL]....Australia.

RS-8R MECHANISM SERIES

SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads (TAPE 1) PLAY	AX head
(TAPE 2) REC/PLAY	AX head
Erasing	Double-gap ferrite head
Motors	
Capstan	1 motor
Reel drive	2 motor
Mechanism	2 motor
Recording system	AC bias
Bias frequency	300 kHz
Erasing system	AC bias
Tape speed	4.8 cm/sec.
Frequency response	
Metal	20 Hz–21,000 Hz 30 Hz–20,000 Hz (DIN) 30 Hz–19,000 Hz (±3 dB)
CrO_2	20 Hz–20,000 Hz 30 Hz–19,000 Hz (DIN) 30 Hz–18,000 Hz ±3 dB
Normal	20 Hz–19,000 Hz 30 Hz–18,000 Hz (DIN) 30 Hz–17,000 Hz ±3 dB
Dynamic Range (with dbx in)	110 dB (1 kHz)
S/N (Signal level = max. recording level, CrO_2 type tape)	
dbx in	92 dB (A weighted)
Dolby C NR in	75 dB (CCIR)
Dolby B NR in	67 dB (CCIR)
NR out	57 dB (A weighted)
Wow and flutter	0.06% (WRMS) ±0.1% (DIN)
Max. Input level improvement (with dbx in)	10 dB
Fast Forward and Rewind Time	Approx. 85 seconds with C-60 cassette tape
Input sensitivity and impedance	
LINE	60 mV/47 kΩ
Output voltage and impedance	
LINE	400 mV/2.5 kΩ
HEADPHONES	80mV/8Ω
Power consumption	38 W
Power supply	AC 50 Hz/60 Hz 110 V/127 V/220 V/240 V, preset power voltage 220 V for Europe except United Kingdom, 240 V for other area
Dimensions (W×H×D)	430×110×325 mm
Weight	6.9 kg

Design and specifications are subject to change without notice.

*The term dbx is a registered trademark of dbx Inc.

**'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Technics

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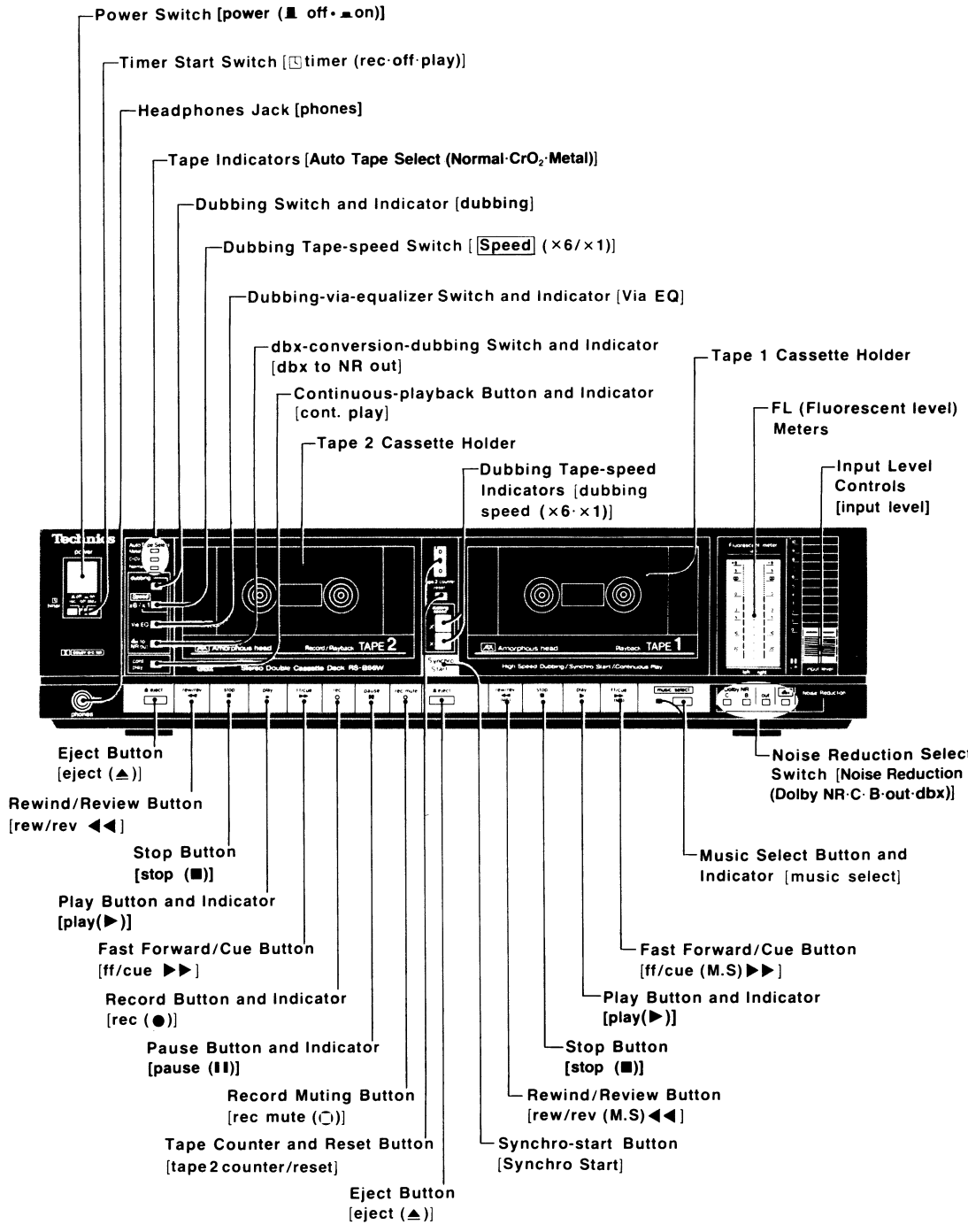
■ LOCATION OF CONTROLS AND COMPONENTS



■ TAPE-TO-TAPE RECORDING

It is possible with this unit to make 4 different types of tape-to-tape recordings.

- **Ordinary tape-to-tape recording**..... This is tape-to-tape recording while listening to the playback sound.
- **dbx-conversion tape-to tape recording**..... This is tape-to-tape recording which returns tape sounds which were originally recorded by using a dbx noise-reduction system to ordinary sounds on the newly recorded tape.
- **6×-speed tape-to-tape recording**..... This is tape-to-tape recording which is made at a speed 6 times faster than the ordinary speed.
- **Via-equalizer tape-to-tape recording**... This is tape-to-tape recording which can be used to create, on the newly recorded tape, any desired tone quality. The recording is made through a graphic equalizer (SH-8075, SH-8055 or SH-8066, available as separately purchased options) connected to this unit.

Synchro-start function
By simply pressing the synchro-start button, the tape playback (on tape deck 1) and tape recording (on tape deck 2) can be started simultaneously, thus avoiding any worry about an incorrect start.

To cancel a tape-to-tape recording
To stop a tape-to-tape recording, press the dubbing switch once again. Check to be sure that the indicator stops illuminating.
- The type of tape-to-tape recording cannot be changed (such as from 6× recording to dbx-conversion recording, etc.) while a tape-to-tape recording is being made.
- The noise-reduction system cannot be used while making a tape-to-tape recording (except when making a dbx-conversion recording or a via-equalizer recording). Thus the noise-reduction switch will have no effect if it is pressed when the dubbing switch is pressed (while the indicator is illuminated).

However, the noise-reduction switch should be pressed (after first pressing the dubbing switch once again in order to cancel the tape-to-tape recording mode) when you want to listen to a tape which has been recorded as a tape-to-tape recording.

Note:
- To stop tape deck 1 and tape deck 2 simultaneously, press the stop button for tape deck 2.
- If, during a tape-to-tape recording, the tape in tape deck 1 reaches its end before the tape in tape deck 2, tape deck 2 will change to the pause mode after a few moments.
- If, during a tape-to-tape recording, the tape in tape deck 2 reaches its end before the tape in tape deck 1, tape deck 1 will stop after a few moments.

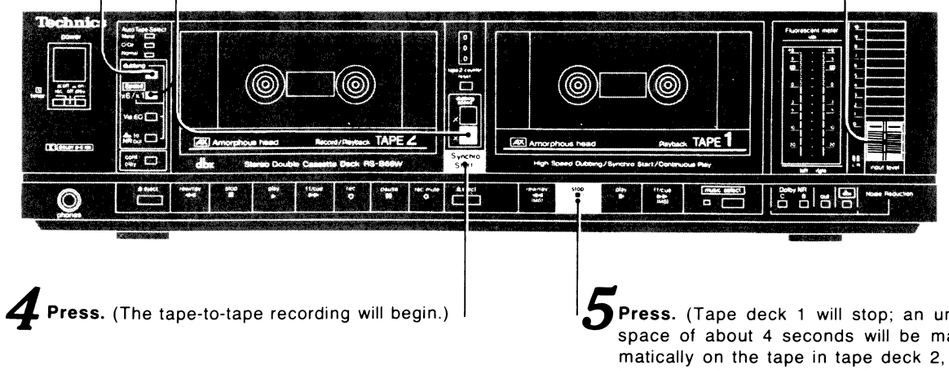
Ordinary tape-to-tape recording

Monitoring during ordinary tape-to-tape recording
dbx-recorded tape...Press the noise-reduction switch marked "dbx". (The monitor sound cannot be heard if any other button is pressed.)
Tape recorded by Dolby B or C-type system...Use the tone control(s) on the amplifier to correct the sound. (The noise-reduction switches have no effect at this time.)

1 **Press.** (The indicator will illuminate.)

2 **Set to the "×1" position.**

3 **Set to "0".**



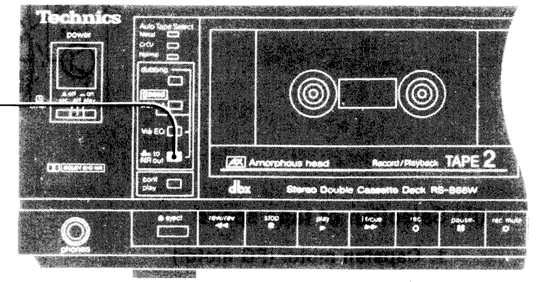
4 **Press.** (The tape-to-tape recording will begin.)

5 **Press.** (Tape deck 1 will stop; an unrecorded space of about 4 seconds will be made automatically on the tape in tape deck 2, and then tape deck 2 will change to the pause mode.)

dbx-conversion tape-to-tape recording

Follow the procedure described below after first following step 2. of steps 1. to 5. in the section "Ordinary tape-to-tape recording" on page 3.

Press. (The indicator will illuminate.)



- This conversion from dbx sound to ordinary sound is useful when you want to make another tape of the dbx-recorded music onto a tape which will be played back on a tape recorder not equipped with a dbx decoding system, such as a small portale tape player or a tape player in your car.

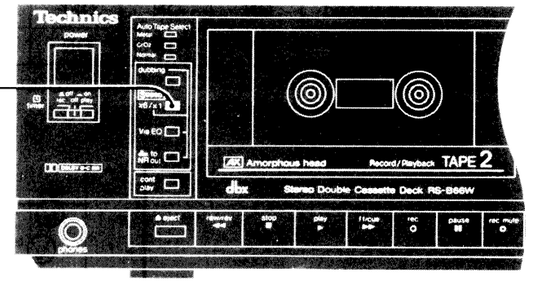
To cancel the dbx-conversion tape-to-tape recording mode
To cancel the dbx-conversion tape-to-tape recording mode, once again press the dbx-conversion dubbing switch; check to be sure that the indicator illumination stops.
- When the dubbing switch is pressed once again, the indicator illumination will stop and, at the same time, the tape-to-tape recording mode will be stopped.
- Before playing a tape which has been recorded from another tape, be sure to first stop the tape-to-tape recording mode and then press the noise-reduction button marked "out".

Note:
A dbx-conversion tape-to-tape recording cannot be made at the 6× speed, and the unit cannot be changed from the 6× tape-to-tape recording mode dbx-conversion tape-to-tape recording mode.
To make such a change. it is necessary to first press the dubbing tape-speed switch to set it to "×1", and then press the dbx-conversion switch.

6×-speed tape-to-tape recording

Step 2. (of steps 1. to 5.) in the section "Ordinary tape-to-tape-recording" on page 3 changes, as described below.

2 **Press** (to set to "×6").

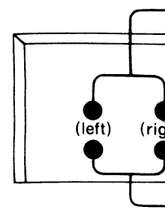


To cancel the 6× tape-to-tape recording mode
To cancel the 6× tape-to-tape recording mode, press the dubbing tape-speed switch once again; check to be sure that the indicator (×1) illuminates (flashes).
- When the dubbing switch is pressed once again, the indicator illumination will stop and, at the same time, the tape-to-tape recording mode will be stopped.
  Note that if the tape in tape deck 1 or tape deck 2 is fast forwarded, rewound or played at any time other than when tape deck 2 is in the recording stand-by condition (in other words, while the record and pause indicators are illuminated), the tape speed will change to the ordinary (×1) speed.

Notes:
- Wait a short time (about 5 to 10 seconds) after changing the tape-to-tape recording speed before beginning the next operation.
  The "×1" indicator will flash when the tape speed is changed from the 6× speed to the ordinary speed. Begin the next operation only after the flashing ends and the indicator illuminates steadily. This is so that the tape-speed mechanism will have time to become fully stabilized.
- Before beginning a 6× tape-to-tape recording, check to be sure that the tape in the cassette is tightly wound, without slack, in order to avoid damage to the tape.
- When the tape speed is changed, the motor sound will momentarily become louder, but this is not a malfunction.

Via-equalize

Connections



A

Operation

1 **Press.** (T

5 **Press**

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Be sure to also ca
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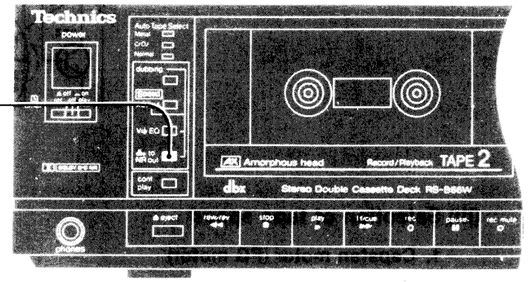
dbx-conversion tape-to-tape recording

Follow the procedure described below after first following step 2. of steps 1. to 5. in the section "Ordinary tape-to-tape recording" on page 3.

Press. (The indicator will illuminate.)



- This conversion from dbx sound to ordinary sound is useful when you want to make another tape of the dbx-recorded music onto a tape which will be played back on a tape recorder not equipped with a dbx decoding system, such as a small portale tape player or a tape player in your car.

To cancel the dbx-conversion tape-to-tape recording mode

To cancel the dbx-conversion tape-to-tape recording mode, once again press the dbx-conversion dubbing switch; check to be sure that the indicator illumination stops.

- When the dubbing switch is pressed once again, the indicator illumination will stop and, at the same time, the tape-to-tape recording mode will be stopped.
- Before playing a tape which has been recorded from another tape, be sure to first stop the tape-to-tape recording mode and then press the noise-reduction button marked "out".

Note:

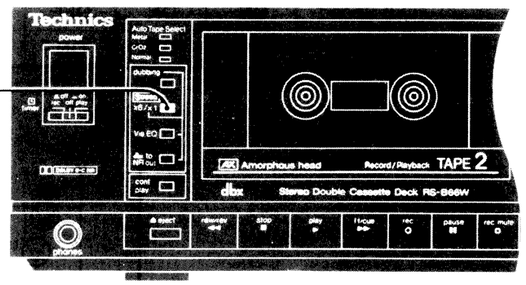
A dbx-conversion tape-to-tape recording cannot be made at the 6× speed, and the unit cannot be changed from the 6× tape-to-tape recording mode dbx-conversion tape-to-tape recording mode.

To make such a change. it is necessary to first press the dubbing tape-speed switch to set it to "×1", and then press the dbx-conversion switch.

6×-speed tape-to-tape recording

Step 2. (of steps 1. to 5.) in the section "Ordinary tape-to tape-recording" on page 3 changes, as described below.

2 Press (to set to "×6").



To cancel the 6× tape-to-tape recording mode

To cancel the 6× tape-to-tape recording mode, press the dubbing tape-speed switch once again; check to be sure that the indicator (×1) illuminates (flashes).

- When the dubbing switch is pressed once again, the indicator illumination will stop and, at the same time, the tape-to-tape recording mode will be stopped.
  Note that if the tape in tape deck 1 or tape deck 2 is fast forwarded, rewound or played at any time other than when tape deck 2 is in the recording stand-by condition (in other words, while the record and pause indicators are illuminated), the tape speed will change to the ordinary (×1) speed.

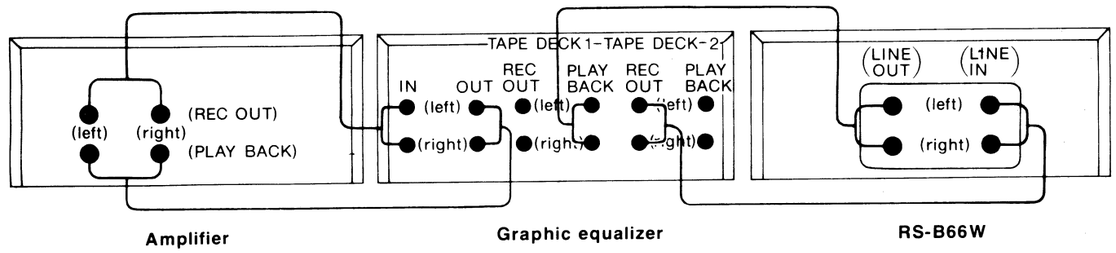
Notes:

- Wait a short time (about 5 to 10 seconds) after changing the tape-to-tape recording speed before beginning the next operation.
  The "×1" indicator will flash when the tape speed is changed from the 6× speed to the ordinary speed. Begin the next operation only after the flashing ends and the indicator illuminates steadily. This is so that the tape-speed mechanism will have time to become fully stabilized.
- Before beginning a 6× tape-to-tape recording, check to be sure that the tape in the cassette is tightly wound, without slack, in order to avoid damage to the tape.
- When the tape speed is changed, the motor sound will momentarily become louder, but this is not a malfunction.

Via-equalizer tape-to-tape recording

- **Be sure that the left and right channel connections are made correctly.**

Connections



If the sounds to be played through the graphic equalizer were originally recorded by using a noise-reduction system, it is necessary, in order to obtain the correct equalizer effect, to press the corresponding noise-reduction button before beginning.

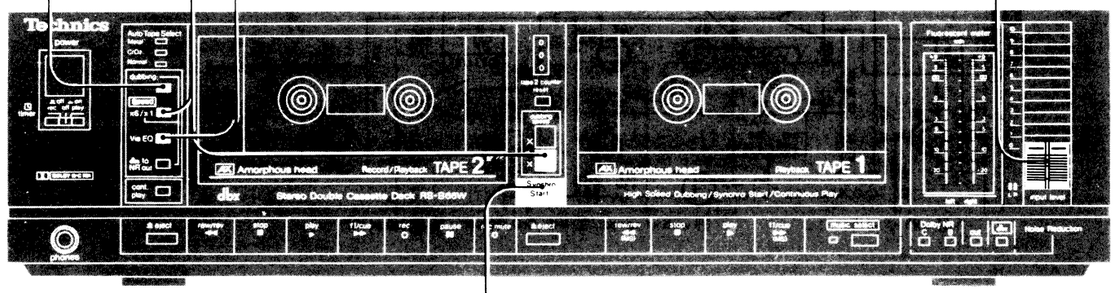
Operation

1 Press. (The indicator will illuminate.)

2 Set to "×1".

3 Press. (The indicator will illuminate.)

4 Press the record button.
Begin the sound source to be recorded.
(Adjust the recording level so that the maximum meter reading is "+5 dB".)
Then rewind tape 1 and leave it in the stop mode.



5 Press. (The tape-to-tape recording will begin.)

Be sure not to press the via-equalizer dubbing switch when a graphic equalizer is not connected to this unit. (If it is pressed, tape-to-tape recordings cannot be made.)

Notes regarding via-equalizer tape-to tape recording

After making a via-equalizer tape-to-tape recording, be sure to switch the graphic equalizer OFF when you play the tape to listen to it, because, if the graphic equalizer is not switched OFF, the equalizer effect will again be applied, and this duplicated effect will not be a true reproduction of the music on the tape.

Be sure to also carefully read the operation instructions for the graphic equalizer which is to be used.

Keep convenient notes on the cassette index card. It is convenient, by making a note such as described below, to keep a record of the process used when a via-equalizer tape-to-tape recording is made, such as the setting of the graphic equalizer's input selector and the monitor sound.

Graphic equalizer input selector: tape 1

Speaker monitor sound:
Tape 1 sound through equalizer

- Be sure to set the graphic equalizer's input selector to the "source" position when making an ordinary recording (such as from a phono disc or radio broadcast). Oscillation may occur if it is set to any other position.

■ TECHNICAL GUIDE

- RS-B66W is equipped with a ×6 speed editing function, 2 times higher than the conventional editing speed, which can meet all purposes as an editing unit. At the same time, it is capable of ensuring sufficient performance required for a high fidelity equipment.

• <Main Features>

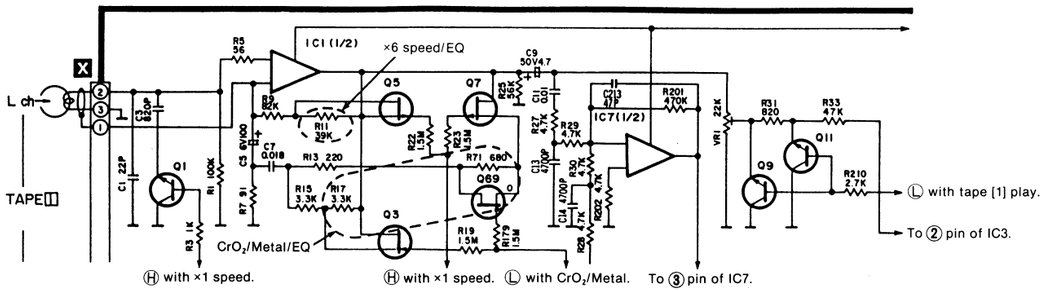
- 4-edition recording functions (normal, ×6 speed, dbx convertion, via equalizer).
- 3 NR functions (Dolby-B, C, dbx).
- Microcomputer logic mechanism (Synchro drive mechanism).
  Only the ×6 speed edition recording is described.
  (The "New Technical Description RS-B66W" is separately issued. So, refer to this manual for the details.)
- Each of the following is selected during ×6 speed edition.
  (1) Playback equalizer (3) Tape speed
  (2) Record equalizer (4) Muting circuit

(I) Selection of playback equalizer

* The parenthesized is Rch Ref. No.

During ×6 speed edition, the output at high frequencies is greater because the playback frequency of the head is 6 times higher than the normal speed. Therefore, the correction level in ×6 speed mode is reduced as compared with the normal speed mode.

(1) Q1 (Q2) is provided for playback peaking condenser selection. Q1 (Q2) turns OFF during ×6 speed mode, then C3 (C4) stops working.
(2) Q3 (Q4) and Q69 (Q70) are provided for 70μs and 120μs selection, which turn ON when 120μs is selected.
(3) Q5 (Q6) and Q7 (Q8) turn ON in ×6 speed mode, lowering the gain at high frequencies.
(4) Q9 (Q10) and Q11 (Q12) are provided for muting of TAPE [1], which turn OFF when only TAPE [1] is played back, and turn ON when both TAPE [1] and TAPE [2] are played back.



(II) Selection of record equalizer

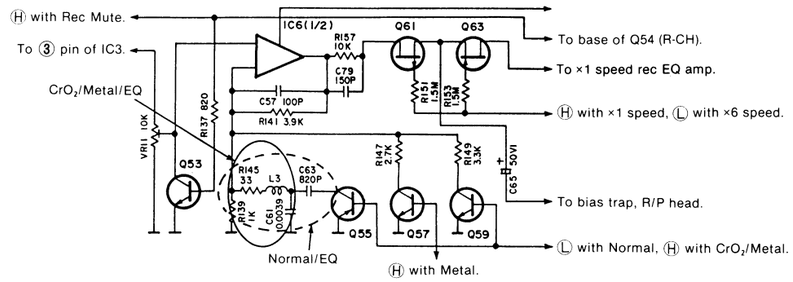
* The parenthesized in Rch Ref. No.

During ×6 speed playback, all the master tape signals are played back at 6 times higher speed. For example, when the master tape signal is at 12kHz, then the playback signal is at 72kHz. In the case of 4.8cm/s record equalizer, a resonant circuit by peaking coil is provided in the range of 15kHz~20kHz for high frequency correction.

If the record equalizer is used as it is during ×6 speed recording mode, the peak appears at 15kHz~20kHz (3kHz~4kHz) during playback after edition), this is not desirable.

Therefore, in RS-B66W, record equalizer circuits are individually used during normal speed and ×6 speed edition mode.

(1) Q53 (Q54) is provided for record muting and turns ON during Rec Mute and other than recording mode.
(2) Q55 (Q56) turns ON in Normal mode and serves to select the peaking frequency of record equalizer.
(3) Q57 (Q58) turns ON in Metal mode, lowering the gain at high frequencies.
(4) Q59 (Q60) turns ON in CrO_2/Metal mode, lowering the gain at high frequencies.
(5) Q61 (Q62) and Q63 (Q64) are provided for the selection of normal speed record equalizer output and ×6 speed record equalizer output. Q61 (Q62) turns ON in ×6 speed mode, while Q63 (Q64) turns ON in normal speed mode.



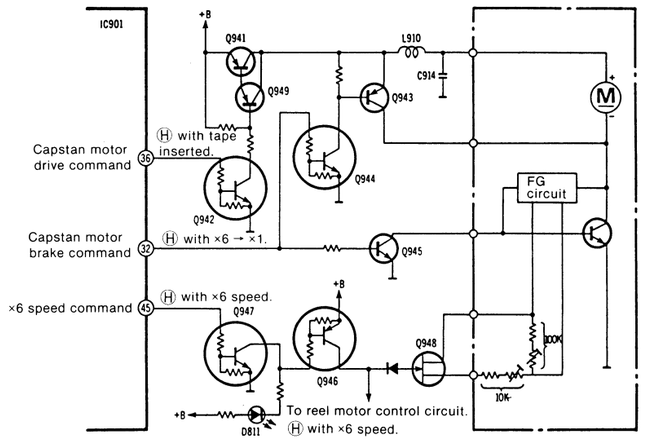
(III) Selection of tape speed

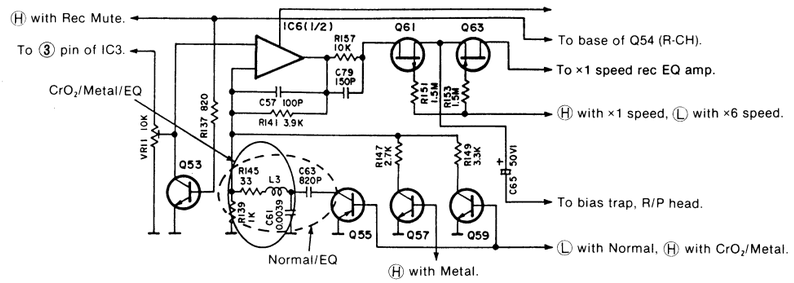
1. Capstan motor (FG motor)

(1) Q945~Q948 are the motor speed selection circuit. Q948 turns ON in ×6 speed mode.
(2) When Q948 turns ON, the motor speed is 6 times higher than the normal speed.
  Motor speed (in normal mode) ..... 550 r.p.m.
  Motor speed (in ×6 mode) ..... 3300 r.p.m.
(3) Q943~Q945 are the motor braking circuit to brake the motor when the speed is shifted from ×6 speed to normal mode.
(4) Q941, Q942 and Q949 are the capstan motor drive circuit. The capstan motor rotates with a tape inserted.

The states of transistor switching are shown in the table below.

Mode \ Transistors	Q941	Q942	Q943	Q944	Q945	Q946	Q947	Q948	Q949
Power ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stop	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
×1 Speed	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
×6 Speed	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON
×6 → ×1	ON	ON	ON	ON	ON	OFF	OFF	OFF	ON





(III) Selection of tape speed

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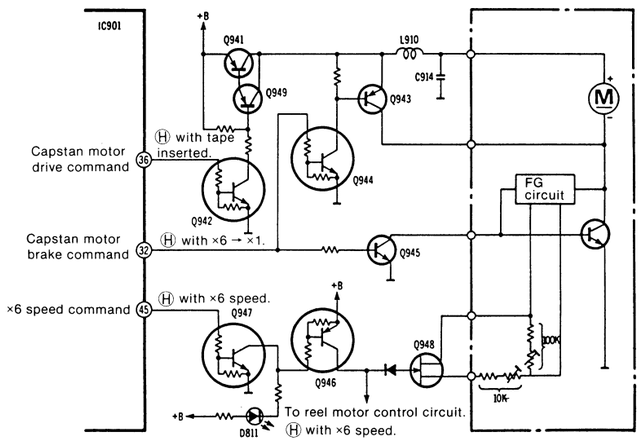
Motor speed (in normal mode) ..... 550 r.p.m.
Motor speed (in ×6 mode) ..... 3300 r.p.m.
(3) Q943~Q945 are the motor braking circuit to brake the motor when the speed is shifted from ×6 speed to normal mode.
(4) Q941, Q942 and Q949 are the capstan motor drive circuit. The capstan motor rotates with a tape inserted.

The states of transistor switching are shown in the table below.

Mode \ Transistors	Q941	Q942	Q943	Q944	Q945	Q946	Q947	Q948	Q949
Power ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stop	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
×1 Speed	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
×6 Speed	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON
×6 → ×1	ON	ON	ON	ON	ON	OFF	OFF	OFF	ON

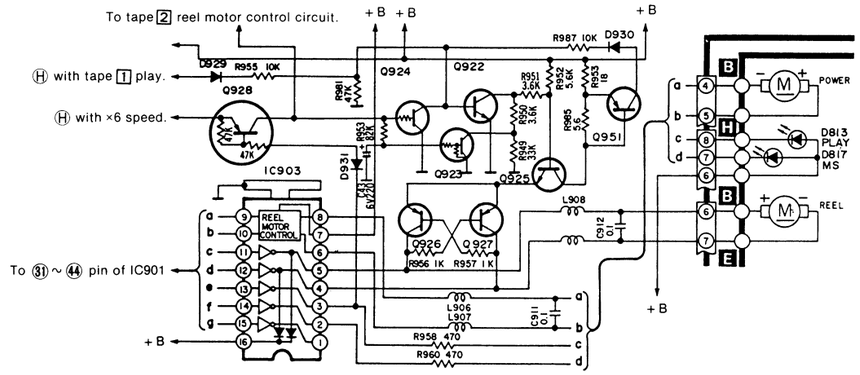


2. Reel motor

(1) The reel motor can be operated at 4 different speeds according to the state of operation.
(2) Q922~Q928 and Q951 are the reel motor control circuit.

The states of Q922~Q928 and Q951 switching in each operation mode are shown in the table below.

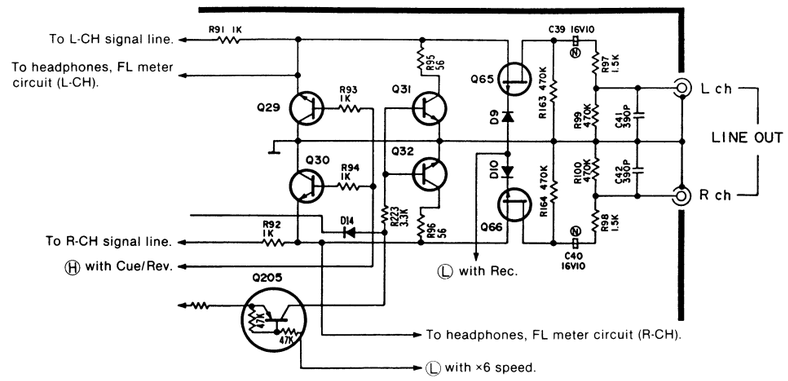
Mode \ Transistors	Q928	Q923	Q924	Q922	Q925	Q926	Q927	Q951
×1 Speed	OFF	OFF	OFF	ON	ON	ON	OFF	ON
×6 Speed	ON	ON	ON	ON	ON	ON	OFF	ON
Fast Forward	OFF	OFF	OFF	OFF	ON	ON	OFF	ON
Rewind	OFF	OFF	OFF	OFF	ON	OFF	ON	ON



(IV) Muting circuit (Line muting)

* The parenthesized is Rch Ref. No.

(1) Q205 is provided for muting command in ×6 speed mode, and turns ON in ×6 speed mode.
(2) Q31 (Q32) turns ON in ×6 speed mode according to the command from Q205, thereby muting the LINE signal.



■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the case cover
Procedure 1	• Remove 2 screws (A) and 3 screws (B).

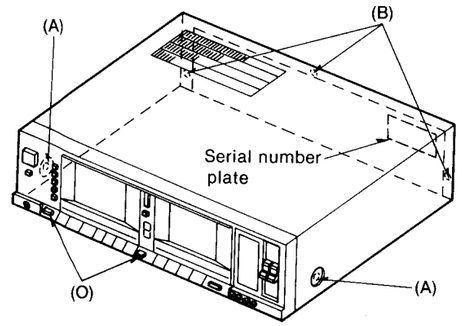


Fig. 1

Ref. No. 2	How to remove the bottom cover
Procedure 2	• Remove 5 screws (C) and 5 screws (D). • Remove 2 screws (E) and 2 screws (F). • Remove one screws (G).

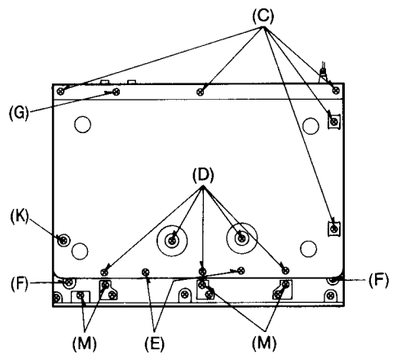


Fig. 2

Ref. No. 3	How to remove the main P.C.B.
Procedure 1 ➡ 3	• Remove 3 screws (H) and one screw (I). • Remove one screw (K) (see fig. 2).

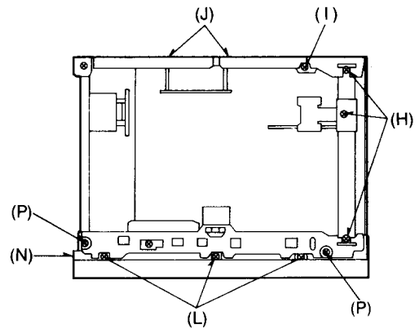
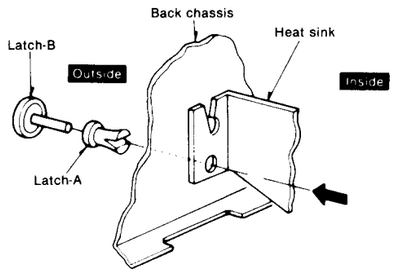


Fig. 3

• Remove 2 latches (J) (see fig. 3 and 4).

(J) How to remove latch



To remove a heat sink from the back chassis, first press latch-A from the inside in the direction indicated by the arrow as shown above, and extract the rivet to the outside. Next remove latch-B from the outside. Consequently, the heat sink can be removed from the back chassis.

Fig. 4

Ref. No. 4	How to remove the front panel assembly
Procedure 1 ➡ 4	• Remove 2 screws (F) and 4 screws (M) (see fig. 2). • Remove 2 screws (E) (see fig. 2). • Remove 3 screws (L) and one screws (N) (see fig. 3). • Push the eject button (O) to open the cassette lid assembly (see fig. 1).

Ref. No. 5	How to remove the mechanism unit
Procedure 1 ➡ 5	• Remove 5 screws (D) and 4 screws (M) (see fig. 2). • Remove 3 screws (L) 2 screws (P) (see fig. 3).

*** Serial No. Indication**

• The serial number plate of this product to attached to the back chassis (shown in fig. 1).

■ MEASUREMENT AND ADJUSTMENT METHODS

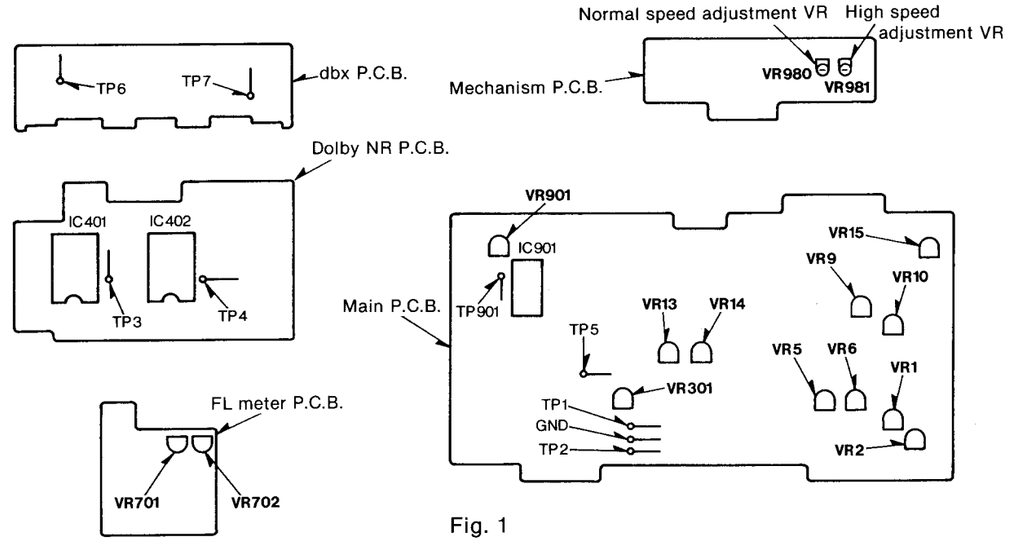


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)
- Input level controls: Maximum
- Dolby NR switch: OUT
- Dubbing switch: OFF
- Dubbing tape speed switch: Normal (×1)
- Timer switch: OFF

Ⓐ Head azimuth adjustment (TAPE 1, TAPE 2)

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

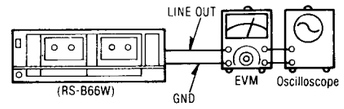


Fig. 2

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.
3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

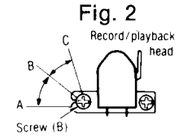


Fig. 3

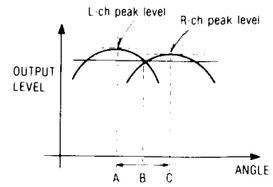


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.
5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two EVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

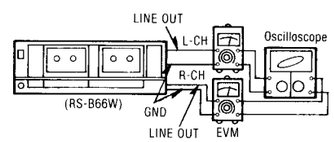


Fig. 5

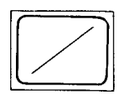


Fig. 6

Ⓑ Tape speed (TAPE [1], TAPE [2])

Condition:
- Playback mode

Equipment:
- Digital frequency counter
- Test tape...QZZCWAT
- Test tape...QZZCFM

Normal speed adjustment

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000 Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000 Hz, determine value by following formula:

   $$\text{Tape speed accuracy} = \frac{f-3{,}000}{3{,}000} \times 100(\%)$$ where, f = measured value
5. Take measurement at middle section of tape.

Standard value: TAPE [1] 3024±66 Hz, TAPE [2] 3000±45 Hz

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR980 shown in Fig. 1.

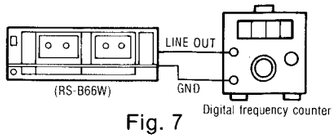


Fig. 7

High speed adjustment

7. Set the test tape QZZCFM (315 Hz, 0dB) on TAPE [1] (for playback) side, and play it back at the normal speed.
8. The output is then (A) Hz.
9. Make the connection as in Fig. 8.
10. Set the dubbing speed switch to ×6 (6 times higher).
11. Adjust VR981 (for high speed adjustment) so that the output between TP3 and ground is 6 times the (A) Hz of step 8 {((A) Hz×6) Hz}.

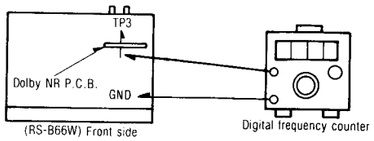


Fig. 8

Notes:
- Make the adjustment about 10 sec. after motor operation.
- Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1-f_2}{3{,}000} \times 100(\%)$$ f_1 = maximum value, f_2 = minimum value

Standard value: Less than 1.5%

Ⓒ Playback frequency response (TAPE [1], TAPE [2])

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM).
3. Measure output level at 315 Hz, 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz and compare each output level with the standard frequency 315 Hz, at test LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart. (Shown fig. 9.)

Playback frequency response chart

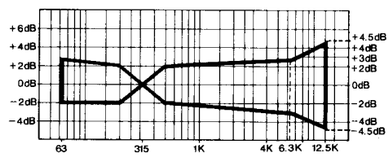


Fig. 9

Ⓓ Playback gain (TAPE [1], TAPE [2])

Condition:
- Playback mode
- Normal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope
- Test tape...QZZCFM

1. Test equipment connection is shown in fig. 10.
2. Playback standard recording level portion on test tape (QZZCFM 315 Hz) and, using EVM, measure the output level at test points [TP3 (L-CH), TP4 (R-CH)].
3. Make measurements for both channels.

Standard value: 0.4V±1dB (0.4V±22mV): at LINE OUT jack]

Adjustment

1. If the measured value is not within the standard, adjust TAPE [1] VR1 (L-CH) or VR2 (R-CH), TAPE [2] VR5 (L-CH) VR6 (R-CH) (See fig 1).
2. After adjustment, check "Playback frequency response" again.

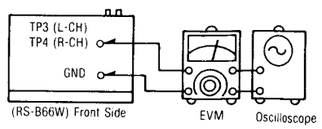


Fig. 10

Ⓔ Erase current

Condition:
- Record mode
- Metal tape mode

Equipment:
- EVM (Electronic Voltmeter)
- Oscilloscope

1. Test equipment connection is shown in fig. 11.
2. Place UNIT into metal tape mode.
3. Press the record and pause buttons.
4. Read voltage on EVM and calculate erase current by following formula:

   $$\text{Erase current (A)} = \frac{\text{Voltage across resistor R301}}{1\,(\Omega)}$$

Standard value: 155±15mA (Metal)

5. If the measured value is not within the standard value, adjust it by using VR301.

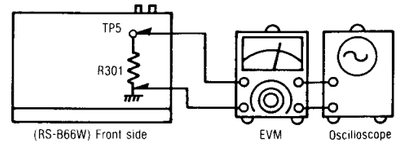


Fig. 11

Ⓕ Overall frequency response (TAPE [2])

Condition:
- Record/playback mode
- Normal tape mode
- CrO_2 tape mode
- Metal tape mode
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)
  ...QZZCRA for Normal
  ...QZZCRX for CrO_2
  ...QZZCRZ for Metal

Note:

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 13.
2. Place UNIT into normal tape mode and insert the normal reference blank test tape (QZZCRA).
3. Supply a 1 kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is −20 dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1 kHz, 50 Hz, 100 Hz, 200 Hz, 500 Hz, 4 kHz, 8 kHz, 10 kHz, 12.5 kHz and 14 kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 5, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 12).
   (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.)
   If the curve is not within the charted specifications, adjust as follows;

Overall frequency response chart (Normal)

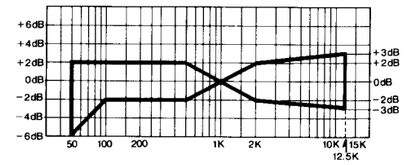


Fig. 12

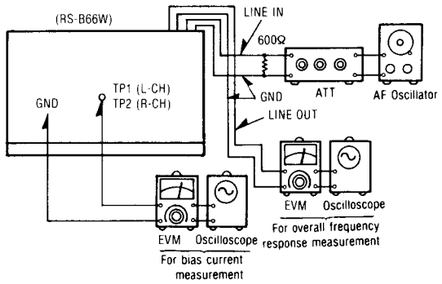


Fig. 13

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 12) as shown in fig. 14.

1) Increase bias current by turning VR13 (L-CH) and VR14 (R-CH).
   (See fig. 1 on page 10.)
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 12.)
3) If the curve still exceeds the specifications (fig. 12), increase bias current further and repeat steps 5 and 6.

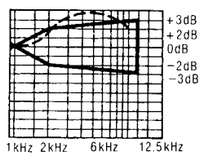


Fig. 14

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 12) as shown in fig. 15.

1) Reduce bias current by turning VR13 (L-CH) and VR14 (R-CH).
2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 12.)
3) If the curve still falls below the charted specifications (fig. 12), reduce bias current further and repeat steps 5 and 6.

Fig. 15

7. Place UNIT into CrO_2 tape mode.
8. Change test tape to CrO_2 reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz, 14kHz and 16kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO_2 tapes (fig. 16).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz, 14kHz and 16kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 16).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.
    • Read voltage on EVM between ground and test point (TP1 for L-CH, TP2 for R-CH) and calculate bias current by following formula:

$$\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$$

Standard value:
around 500μA (Normal position)
around 600μA (CrO_2 position)
around 1mA (Metal position)

Overall frequency response chart (CrO_2, Metal)

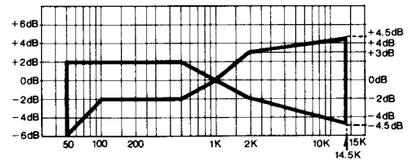


Fig. 16

G Overall gain (TAPE 2)

Condition:
- Record/playback mode
- Normal tape mode
- Input level controls...MAX
- Standard input level; LINE IN ...−24±4dB (63mV)

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- Test tape (reference blank tape) ...QZZCRA for Normal
- AF oscillator
- Oscilloscope

1. Test equipment connection is shown in fig. 17.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (−24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes 0.4V±22mV.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.4V±22mV.
7. If measured value is not 0.4V±22mV, adjust it by using VR9 (L-CH) or VR10 (R-CH).
8. Repeat from step (2).

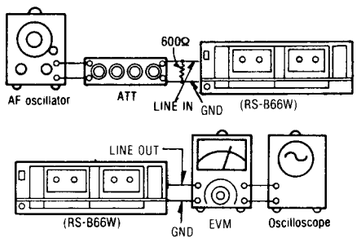


Fig. 17

H Fluorescent meter (TAPE 2)

Condition:
- Record mode
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- AF oscillator
- Oscilloscope
- Resistor (600Ω)

1. Make connections as shown in fig. 17.
2. In the recording pause mode, apply 1kHz (−24dB) to LINE IN.
3. Adjust ATT so that output level at LINE OUT is 0.4V.
4. At this time, check that 0dB indicator is lighted halfway (intermediate brightness between full brightness and light-out: See fig. 18).
5. If the indicator is not lighted halfway as described in step 4, adjust VR701 (L-CH), VR702 (R-CH).
6. Repeat adjustments and checks at steps 3, 4 and 5 two or three times.

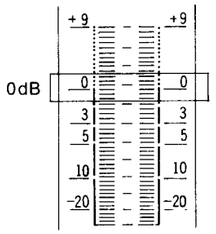
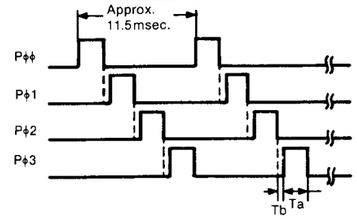
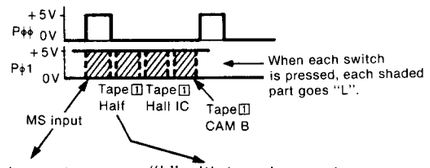
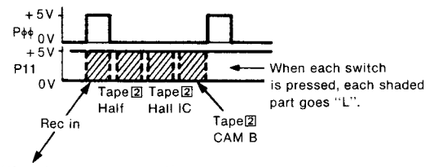
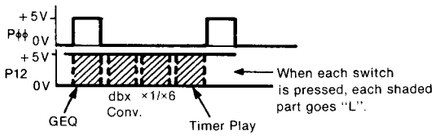
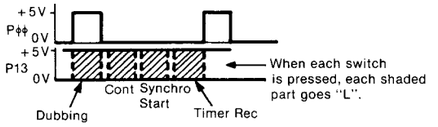


Fig. 18

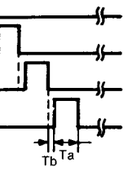
■ MN1564STJ (IC901) EACH TERMINAL FUNCTION AND WAVEFORM

Terminal No.	Symbol	Name	Function/operation
1.	Vss	GND	
2.	P$\phi\phi$	Input/mechanism switch scan.	 Pulse width: Ta = Approx. 2.7msec., Tb = Approx. 100μsec.
3.	Pϕ1		
4.	Pϕ2		
5.	Pϕ3		
6.	STO	Non connection	Not used.
7.	P1ϕ	Reading of input switch state TAPE 1 HALF (S984) TAPE 1 CAM B (S983) TAPE 1 HALL IC signal MS signal	Reads switch states corresponding to scanning of P$\phi\phi$ — 3. 
8.	P11	Reading of input switch state REC INH (S982) TAPE 2 HALF (S984) TAPE 2 CAM B (S983) TAPE 2 HALL IC signal	Reads switch state corresponding to scanning of P$\phi\phi$ — 3.  Tape without erase prevention lug is inserted → "L".
9.	P12	Reading of input switch state GEQ (S804) dbx conversion (S802) ×1/×6 (S801) Timer Play (S806)	Reads switch state corresponding to scanning of P$\phi\phi$ — 3. 
10.	P13	Reading of input switch state Dub. (S805) CONT. (S803) Synchro start (S819) Timer rec (S806)	Reads switch state corresponding to scanning of P$\phi\phi$ — 3. 

Terminal No.	Symbo
11.	ST1
12.	$\overline{\text{SYNC}}$
13. ≀ 16.	
17.	$\overline{\text{RST}}$
18.	P2ϕ
19.	P21
20.	P22
21.	P23
22.	P3ϕ
23.	P31
24.	P32
25.	P33
26.	P4ϕ
27.	P41

N AND WAVEFORM

ation



b = Approx. 100μsec.

scanning of Pϕϕ — 3.

When each switch is pressed, each shaded part goes "L".

pe inserted

scanning of Pϕϕ — 3.

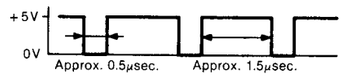
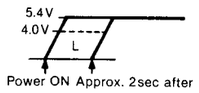
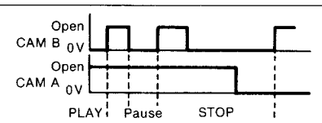
When each switch is pressed, each shaded part goes "L".

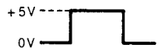
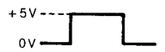
scanning of Pϕϕ — 3.

When each switch is pressed, each shaded part goes "L".

scanning of Pϕϕ — 3.

When each switch is pressed, each shaded part goes "L".

Terminal No.	Symbol	Name	Function/operation
11.	ST1	Non connection	Not used.
12.	$\overline{\text{SYNC}}$		$\overline{\text{SYNC}}$: Output waveform during operation. 
13. ≀ 16.		Non connection	Not used.
17.	$\overline{\text{RST}}$	Reset terminal	Reset terminal of computer. Automatically reset at less than 3.5∼4.0V. 
18.	P2ϕ	Reading of input switch state REC (S807)	"L" with REC switch ON.
19.	P21	Reading of input switch state PAUSE (S808)	"L" with PAUSE switch ON.
20.	P22	Reading of input switch state Rec mute (S809)	"L" with REC MUTE switch ON.
21.	P23	Reading of input switch state TAPE [2] CAM A (S981)	
22.	P3ϕ	Reading of input switch state TAPE [2] STOP (S810)	"L" with TAPE [2] STOP switch ON.
23.	P31	Reading of input switch state TAPE [2] PLAY (S811)	"L" with TAPE [2] PLAY switch ON.
24.	P32	Reading of input switch state TAPE [2] FF (S812)	"L" with TAPE [2] FF switch ON.
25.	P33	Reading of input switch state TAPE [2] REW (S813)	"L" with TAPE [2] REW switch ON.
26.	P4ϕ	Reading of input switch state TAPE [1] STOP (S814)	"L" with TAPE [1] STOP switch ON.
27.	P41	Reading of input switch state TAPE [1] PLAY (S815)	"L" with TAPE [1] PLAY switch ON.

Terminal No.	Symbol	Name	Function/operation
28.	P42	Reading of input switch state TAPE [1] FF (S816)	"L" with TAPE [1] FF switch ON.
29.	P43	Reading of input switch state TAPE [1] REW (S817)	"L" with TAPE [1] REW switch ON.
30.	P5ϕ	Reading of input switch state MS (S818)	"L" with music select switch ON.
31.	P51	Reading of input switch state TAPE [1] CAM A (S981)	Refer to terminal number 21.
32.	P52	Capstan motor brake command	"H" pulse when ×6 is shifted to ×1.
33.	V_{DD}	Power supply terminal	Operative on 4.5 to 5.5 volts.
34.	V_{MM}	Memory power supply terminal	Operative on 4.5 to 5.5 volts.
35.	$\overline{\text{HLDM}}$	Memory power hold designating terminal	Operative on 4.5 to 5.5 volts.
36.	P53	Capstan motor drive command	"L" with tape inserted.
37.	P6ϕ	TAPE [1] muting command	"H" when only TAPE [1] is playback mode.
38.	P61	Cont play indication output	"H" with cont play mode.
39.	P62	MS indication output	"H" with music select switch ON.
40.	P63	TAPE [1] PLAY command	"H" with TAPE [1] playback mode.
41.	P7ϕ	TAPE [1] FF/REW motor CW rotation command	"H" with TAPE [1] PLAY and FF mode.
42.	P71	TAPE [1] FF/REW motor CCW rotation command	"H" with TAPE [1] REW mode.
43.	P72	TAPE [1] drive motor CW rotation command	"H" pulse when TAPE [1] STOP is shifted to PLAY. 
44.	P73	TAPE [1] drive motor CCW rotation command	"H" pulse when TAPE [1] is shifted to STOP. 

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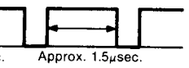
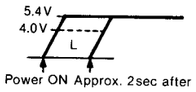
uring operation. 
r. ss than 3.5∼ 
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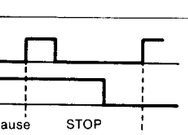
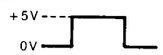
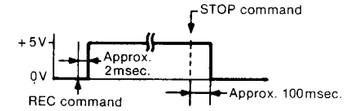
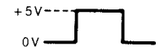
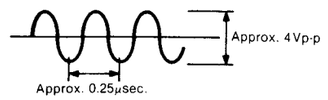

tch ON.
tch ON.
ı ON.
ch ON.
tch ON.
tch ON.

Terminal No.	Symbol	Name	Function/operation
28.	P42	Reading of input switch state TAPE [1] FF (S816)	"L" with TAPE [1] FF switch ON.
29.	P43	Reading of input switch state TAPE [1] REW (S817)	"L" with TAPE [1] REW switch ON.
30.	P5ϕ	Reading of input switch state MS (S818)	"L" with music select switch ON.
31.	P51	Reading of input switch state TAPE [1] CAM A (S981)	Refer to terminal number 21.
32.	P52	Capstan motor brake command	"H" pulse when ×6 is shifted to ×1.
33.	V_{DD}	Power supply terminal	Operative on 4.5 to 5.5 volts.
34.	V_{MM}	Memory power supply terminal	Operative on 4.5 to 5.5 volts.
35.	$\overline{HLDM}$	Memory power hold designating terminal	Operative on 4.5 to 5.5 volts.
36.	P53	Capstan motor drive command	"L" with tape inserted.
37.	P6ϕ	TAPE [1] muting command	"H" when only TAPE [1] is playback mode.
38.	P61	Cont play indication output	"H" with cont play mode.
39.	P62	MS indication output	"H" with music select switch ON.
40.	P63	TAPE [1] PLAY command	"H" with TAPE [1] playback mode.
41.	P7ϕ	TAPE [1] FF/REW motor CW rotation command	"H" with TAPE [1] PLAY and FF mode.
42.	P71	TAPE [1] FF/REW motor CCW rotation command	"H" with TAPE [1] REW mode.
43.	P72	TAPE [1] drive motor CW rotation command	"H" pulse when TAPE [1] STOP is shifted to PLAY.
44.	P73	TAPE [1] drive motor CCW rotation command	"H" pulse when TAPE [1] is shifted to STOP. 

Terminal No.	Symbol	Name	Function/operation
45.	P8ϕ	6×-speed command	"H" with 6×-speed.
46.	P81	1×-speed command	"H" with 1×-speed.
47.	P82	Dubbing command	"H" with dubbing mode.
48.	P83	dbx convertion command	"H" with dbx convertion.
50.	P91	Rec mute command	"H" with REC MUTE SW ON; "H" in modes other than Rec.
51.	P92	Cue/rev command	"H" with Cue/rev mode.
52.	P93	All amp. mute	"H" with FF, REW and STOP mode. "H" with REC, PLAY and Cue/rev mode.
53.	PAϕ	Bias oscillation command	"H" about 2msec. after REC command. "H" throughout REC and PLAY. "L" about 100msec. after STOP command. 
54.	PA1	Pause indication output	"H" with pause mode.
55.	PA2	TAPE [2] PLAY command	"H" with TAPE [2] PLAY mode.
56.	PA3	REC command	"H" with REC mode.
57.	PBϕ	TAPE [2] FF/REW motor CW rotation command	"H" with TAPE [2] PLAY and FF mode.
58.	PB1	TAPE [2] FF/REW motor CCW rotation command	"H" with TAPE [2] REW mode.
59.	PB2	TAPE [2] drive motor CW rotation command	"H" pulse with STOP → Pause → PLAY. "H" pulse with STOP → PLAY. 
60.	PB3	TAPE [2] drive motor CCW rotation command	"H" pulse with PLAY → Pause → STOP. "H" pulse with PLAY → STOP.
61.	OSC2	Oscillation element connecting terminal of clock.	Oscillated at about 4MHz. 
62.	OSC1	GND	
63.	$\overline{TC1}$	Non connection	Not used.
64.	$\overline{TC\phi}$	Non connection	Not used.

❶ Dolby NR circuit

Condition:
- Record mode/playback mode
- Dolby NR switch...IN/OUT
- Dolby NR select switch...B/C
- Input level controls...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- Resistor (600Ω)
- AF oscillator
- Oscilloscope

Record side

- Check of the Dolby-B type encoder characteristics
1. Make connections as shown in fig. 19.
2. Set the unit to the record mode. (NR select switch is OUT.)
3. Apply a 1kHz signal to LINE IN.
4. Adjust the ATT so that the output level at TP3 (L-CH) and TP4 (R-CH) is 12.3mV.
5. The output level at pin 21 should be 0dB.
6. Set the NR select switch to B, and make sure that the output signal level at pin 12 of IC401 (L-CH) and IC402 (R-CH) is +6dB±2dB (753mV).
7. Set the NR select switch to OUT, and adjust the frequency to 5kHz. The output signal level at pin 21 should be 0dB.
8. Set the NR select switch to B and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is +8dB±2dB (948mV).

- Check of the Dolby-C type encoder characteristics
9. Repeat steps 1-5 above.
10. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is 11.5dB±2dB (1.4V).
11. Set the NR select switch to OUT and adjust the frequency to 5kHz. The output signal at pin 21 should be 0dB.
12. Set the NR select switch to C and make sure that the output signal level at pin 21 of IC401 (L-CH) and IC402 (R-CH) is 8.5dB±2dB.

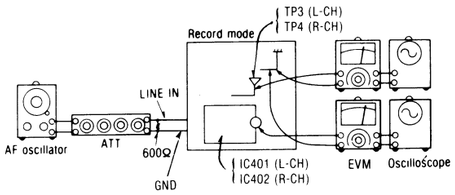


Fig. 19

❷ Attack recovery time adjustment (dbx circuit)

Condition:
- Record mode
- Input level control...MAX

Equipment:
- EVM (Electronic Voltmeter)
- ATT
- AF oscillator
- DC voltmeter

Record side

1. Make the connections as shown in fig. 20 and apply 1kHz −27dB signal from LINE IN, and set the noise reduction selector to dbx IN position.
2. Set the unit to record mode, adjust ATT so that the signal level at C541 (L-CH) and C542 (R-CH) is 300mV.
3. Read voltage on DC voltage meter.

Reference value: 15±0.5mV

4. If measured value is not within reference, adjust VR15 (shown in Fig. 1).

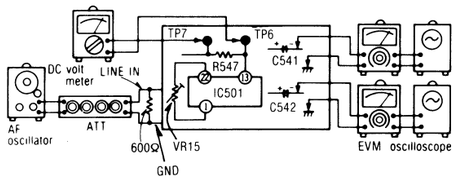
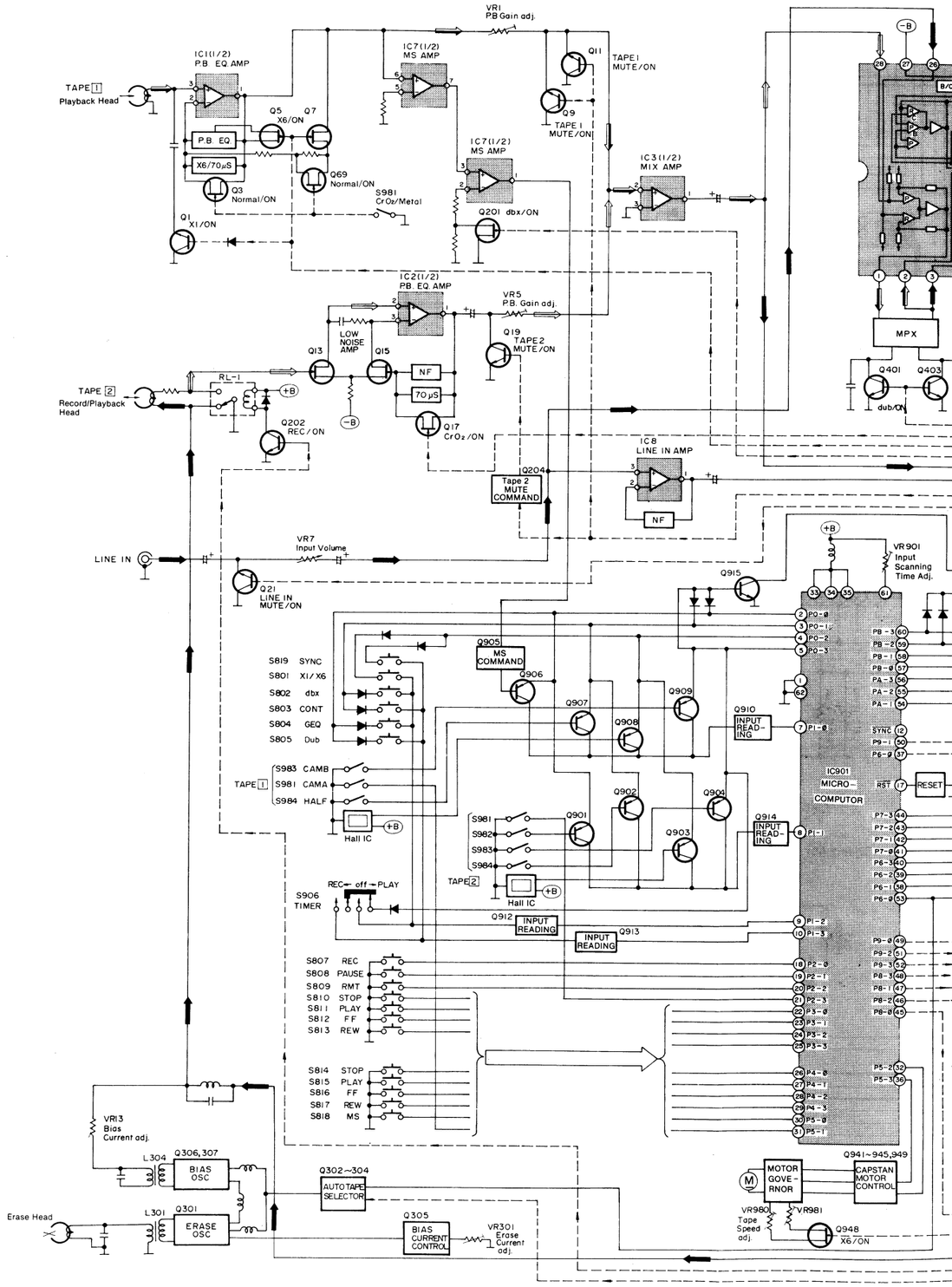


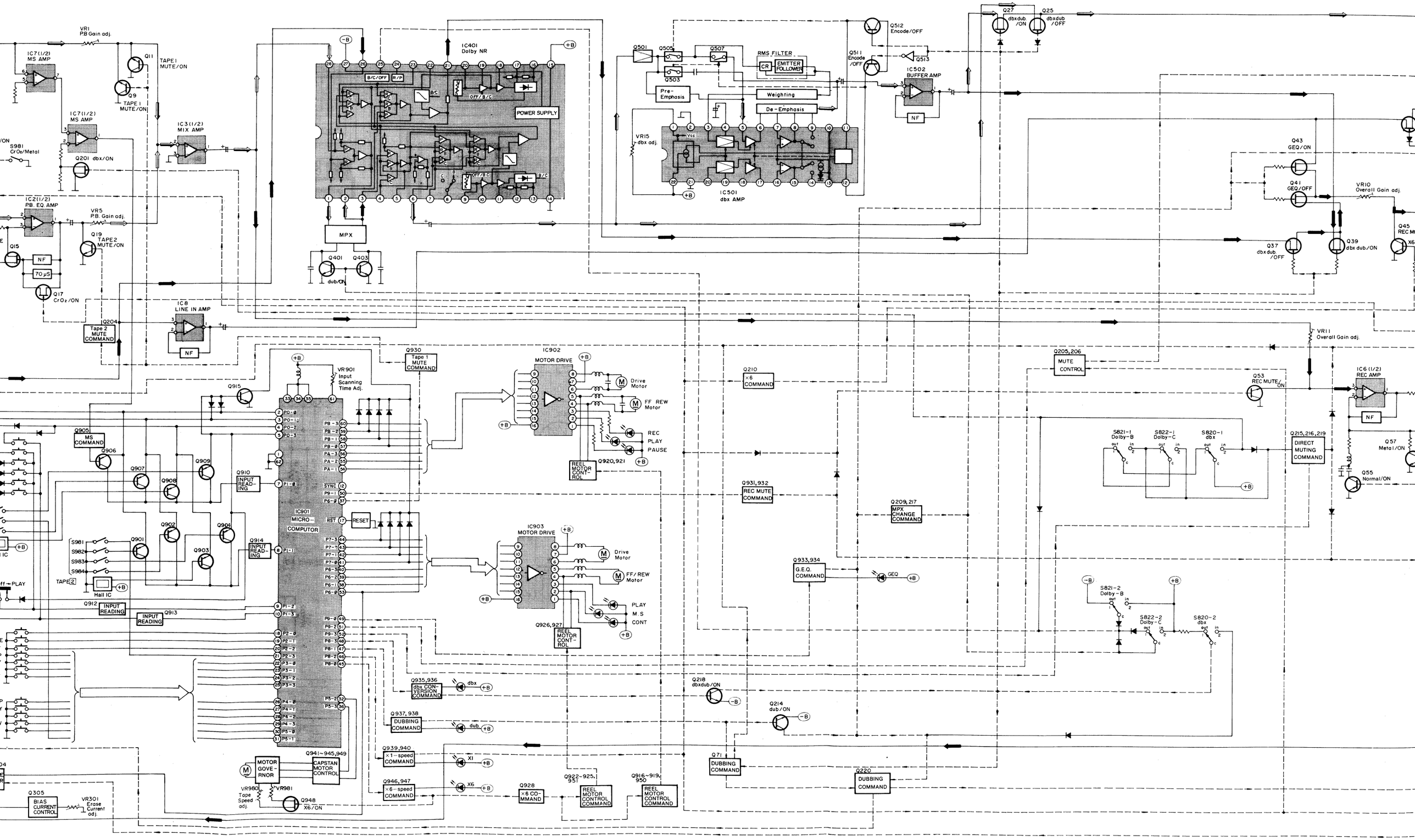
Fig. 20

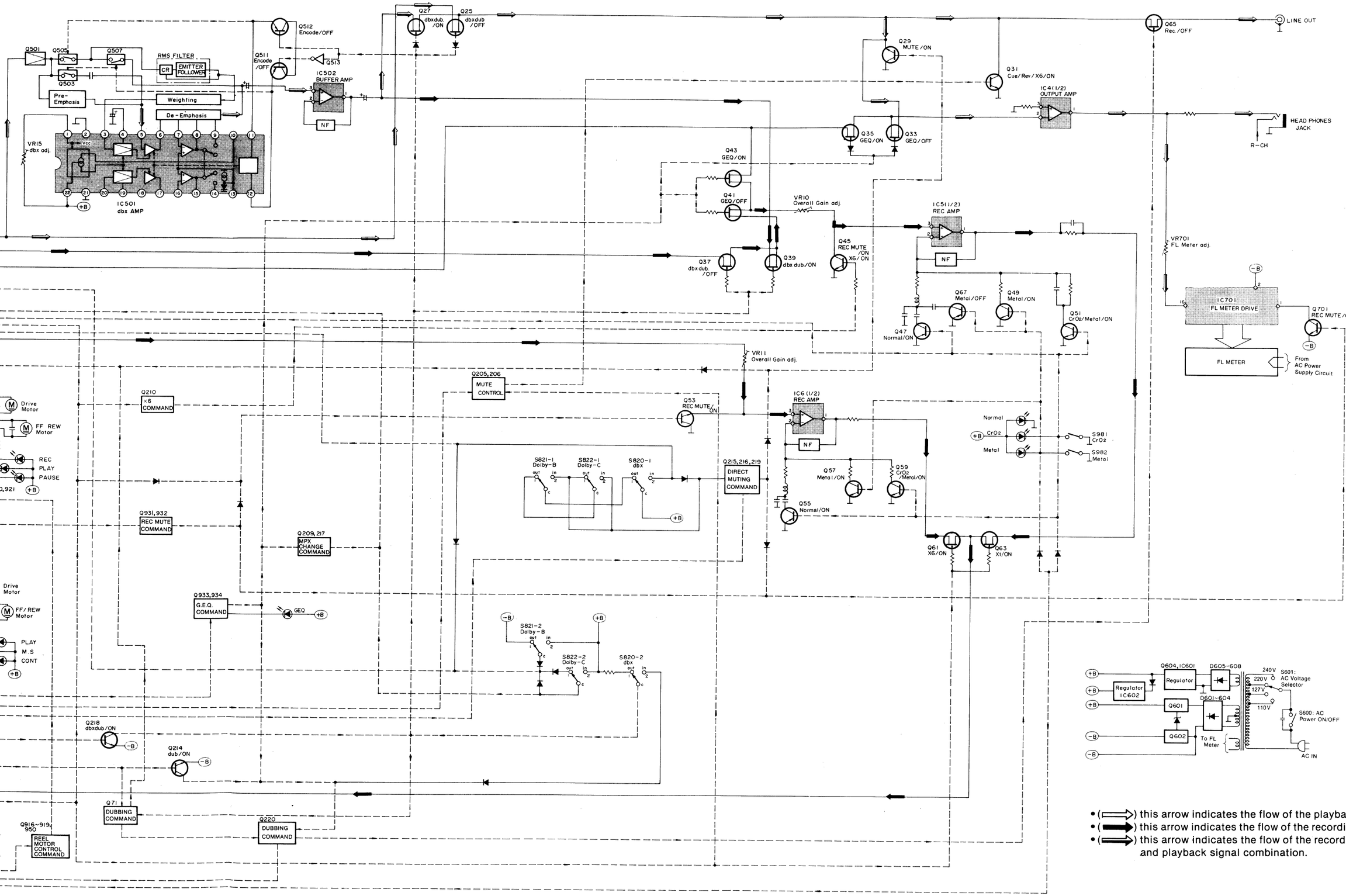
Note:

It is practical to remove the Dolby NR board when adjusting each part on dbx board.
In that case, however, apply 1kHz, 400mV signal from No. 3 pin (L-CH) {No. 1 pin (R-CH) of BB} of connector CC on main P.C.B.

■ BLOCK DIAGRAM

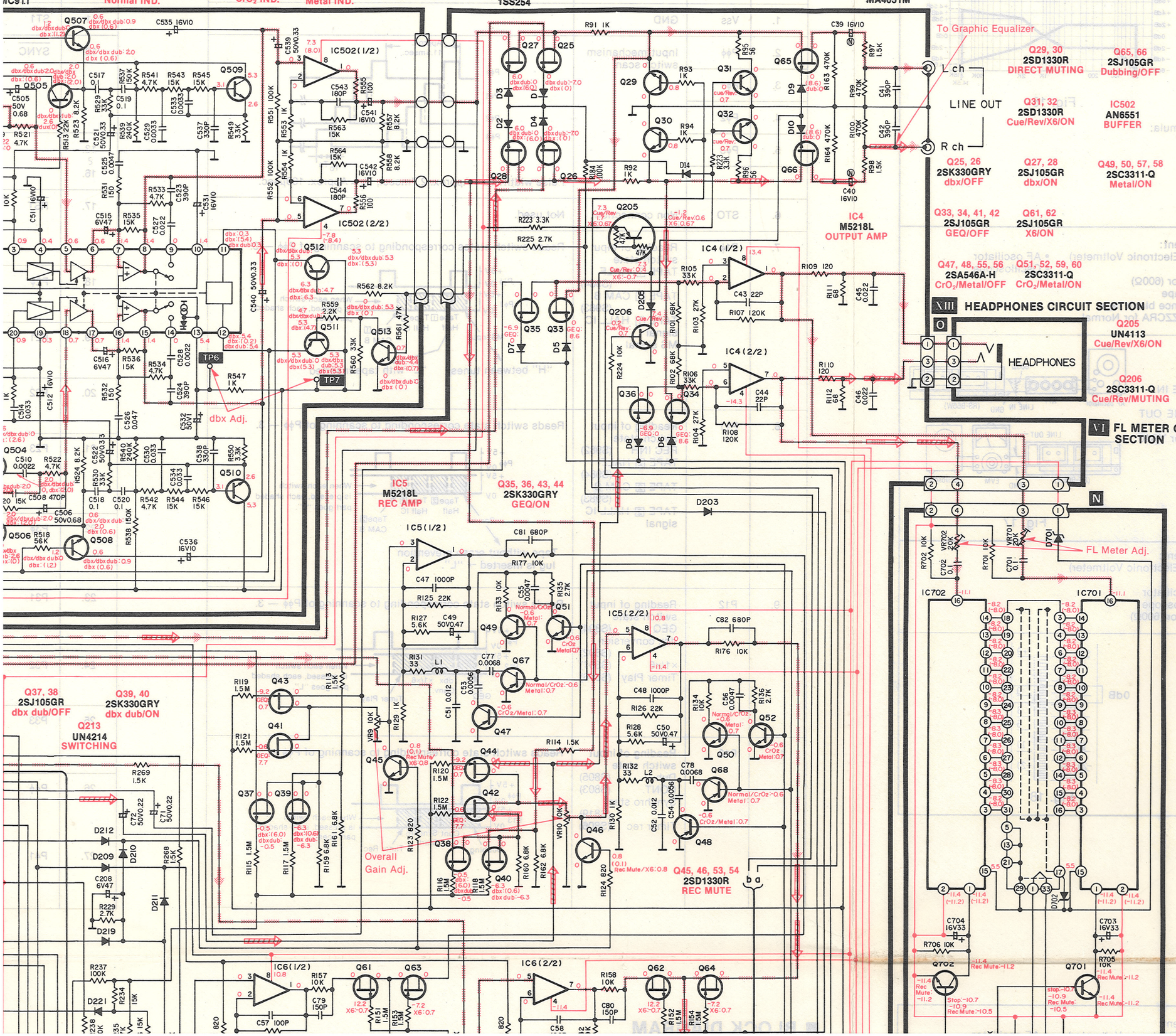



VR1 PB Gain adj.
IC7(1/2) MS AMP
Q11 TAPE1 MUTE/ON
Q9 TAPE 1 MUTE/ON
IC7(1/2) MS AMP
IC3(1/2) MIX AMP
S981 CrO2/Metal
Q201 dbx/ON
IC2(1/2) PB. EQ. AMP
VR5 P.B. Gain adj.
Q19 TAPE2 MUTE/ON
Q15
NF
70μS
Q17 CrO2 /ON
IC8 LINE IN AMP
Q204 Tape 2 MUTE COMMAND
NF
IC401 Dolby NR
B/C/OFF
R/P
OFF/B/C
POWER SUPPLY
MPX
Q401 Q403
dub/ON
Q501
Q505
Q507
Q503
RMS FILTER
CR
EMITTER FOLLOWER
Pre-Emphasis
Weighting
De-Emphasis
VR15 dbx adj.
IC501 dbx AMP
Q512 Encode/OFF
Q511 Encode /OFF
Q513
IC502 BUFFER AMP
NF
Q27 dbxdub. /ON
Q25 dbxdub /OFF
Q43 GEQ/ON
Q41 GEQ/OFF
VR10 Overall Gain adj.
Q37 dbxdub /OFF
Q39 dbx dub./ON
Q45 REC MUTE
X6
VR11 Overall Gain adj.
Q205,206 MUTE CONTROL
Q53 REC MUTE/ON
IC6(1/2) REC AMP
NF
Q57 Metal/ON
Q55 Normal/ON
S821-1 Dolby-B
S822-1 Dolby-C
S820-1 dbx
Q215,216,219 DIRECT MUTING COMMAND
S821-2 Dolby-B
S822-2 Dolby-C
S820-2 dbx
Q209,217 MPX CHANGE COMMAND
Q933,934 G.E.Q. COMMAND
GEQ
Q930 Tape 1 MUTE COMMAND
Q915
VR901 Input Scanning Time Adj.
IC902 MOTOR DRIVE
Drive Motor
FF REW Motor
REC
PLAY
PAUSE
Q920,921
REEL MOTOR CONTROL
Q210 ×6 COMMAND
Q931,932 REC MUTE COMMAND
Q905 MS COMMAND
Q906
Q907
Q908
Q909
Q910 INPUT READING
IC901 MICRO-COMPUTOR
RESET
IC903 MOTOR DRIVE
Drive Motor
FF/REW Motor
PLAY
M.S CONT
Q926,927
REEL MOTOR CONTROL
Q902
Q904
Q914 INPUT READING
S981
S982
S983
S984
TAPE 2
Hall IC
Q901
Q903
Q912 INPUT READING
Q913 INPUT READING
Q935,936 dbx CONVERSION COMMAND
dbx
Q937,938 DUBBING COMMAND
dub
Q939,940 ×1-speed COMMAND
XI
Q946,947 ×6-speed COMMAND
X6
Q928 ×6 COMMAND
Q922~925, 951 REEL MOTOR CONTROL COMMAND
Q916~919, 950 REEL MOTOR CONTROL COMMAND
Q941~945,949 CAPSTAN MOTOR CONTROL
MOTOR GOVERNOR
VR980 Tape Speed adj.
VR981
Q948 X6/ON
Q305 BIAS CURRENT CONTROL
VR301 Erase Current adj.
Q218 dbxdub/ON
Q214 dub/ON
Q71 DUBBING COMMAND
Q220 DUBBING COMMAND



- (⇒) this arrow indicates the flow of the playback signal.
- (➡) this arrow indicates the flow of the recording signal.
- (⇛) this arrow indicates the flow of the recording signal and playback signal combination.

13 14 15 16 17 18 19 20 21 22



NOTES:

- **S600** : Power switch (shown in **ON** position).
- **S601** : AC power voltage selector.
- **S801** : Dubbing speed select switch (shown in ×1 position).
- **S802** : dbx dubbing switch (shown in **OFF** position).
- **S803** : Cont. play switch (shown in **OFF** position).
- **S804** : Graphic equalizer switch (shown in **OFF** position).
- **S805** : Dubbing switch (shown in **OFF** position).
- **S806** : Timer switch (shown in **OFF** position).
- **S807** : Tape [2] REC switch (shown in **OFF** position).
- **S808** : Tape [2] PAUSE switch (shown in **OFF** position).
- **S809** : Tape [2] REC MUTE switch (shown in **OFF** position).
- **S810** : Tape [2] STOP switch (shown in **OFF** position).
- **S811** : Tape [2] PLAY switch (shown in **OFF** position).
- **S812** : Tape [2] FF switch (shown in **OFF** position).
- **S813** : Tape [2] REW switch (shown in **OFF** position).
- **S814** : Tape [1] STOP switch (shown in **OFF** position).
- **S815** : Tape [1] PLAY switch (shown in **OFF** position).
- **S816** : Tape [1] FF switch (shown in **OFF** position).
- **S817** : Tape [1] REW switch (shown in **OFF** position).
- **S818** : Tape [1] MS switch (shown in **OFF** position).
- **S819** : Synchro start switch (shown in **OFF** position).
- **S820** : dbx switch (shown in **OUT** position).
- **S821** : Dolby B NR switch (shown in **OUT** position).
- **S822** : Dolby C NR switch (shown in **OUT** position).
- **S981** : CrO_2 tape detection switch (shown in **OFF** position).
- **S982** : Metal tape detection switch (shown in **OFF** position).
- **S983** : Tape [2] rec inhibit switch (shown in **OFF** position).
- **S984** : Half switch (shown in **OFF** position).
- **S985** : Mode switch (shown in **OFF** position).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K = 1,000(Ω), 1M = 1,000k(Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  - ( ) .....Voltage values at record mode.
  - CrO_2 .....Voltage values at CrO_2 tape mode.
  - Metal .....Voltage values at Metal tape mode.
  - Stop .....Voltage values at Stop mode.
  - TAPE .....Voltage values at Tape monitor mode.
  - dbx .....Voltage values at dbx mode.
  - B .....Voltage values at Dolby B NR mode.
  - C .....Voltage values at Dolby C NR mode.
  - OUT .....Voltage values at NR OUT mode.
  - FF/REW .....Voltage values at FF/REW mode.
  - Rec mute .....Voltage values at Rec mute mode.
  - Dub. .....Voltage values at dubbing mode.
  - dbx dub .....Voltage values at dbx dubbing mode.
  - ×6 → ×1 .....Voltage values at 6×-speed → 1×-speed mode.
  - ×6 .....Voltage values at 6×-speed mode.
  - GEQ .....Voltage values at graphic equalizer dubbing mode.
  - CONT PLAY ...Voltage values at continuation playback mode.
  - MS .....Voltage values at music select mode.
  - CUE/REV .....Voltage values at cue/review mode.
  - Pause .....Voltage values at pause mode.
  - Play → Stop ...Voltage values at play → stop mode.
  - Stop → Play ...Voltage values at stop → play mode.

  For measurement use EVM.
- (——) indicates B (bias).
- (▒▒▒) indicates the flow of the playback signal.
- (▒▒▒) indicates the flow of the recording signal.
- (⇒) indicates the flow of the dbx dubbing signal.
- (⇒) indicates the flow of the equalizer dubbing signal.
- **Important safety notice**
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The part no. of diodes mentioned in the schematic diagram

4 5 6 7 8 9 10 11 12 13

D201, 202
1SS254

IC7
M5218L
MS. AMP

Q9~12
2SC3311-Q
MUTING

Q3, 4, 69, 70
2SK330GRY
120μS/ON

Q201
2SJ105GR
dbx ON/OFF

Q5~8
2SJ105GR
X1/ON

P.B. Gain Adj.

II DOLBY NR CIRCUIT SECTION

IC401, 402
TEA0665
Dolby NR

Dolby NR Adj.

D206
MA4051M

dbx Adj.

III dbx CIRCUIT SECTION

D501
SVDMC911

D808
LN242RP
Normal IND.

IC501
AN6291
dbx AMP

IC2 (1/2) IC2 (2/2) IC3 (1/2) IC3 (2/2)

IC3
M5220L
MIX AMP

IC8
M5218L
LINE AMP

IC8 (1/2) IC8 (2/2)

Q920, 921, 926, 927
2SB1030Q
FF/REW

Q928
UN4113
SWITCHING

Q916, 925
2SD946P
SWITCHING

Q918, 922
2SC3311-Q
SWITCHING

Q915
2SD592A

Q919, 924
UN4216

Q71
UN4113
SWITCHING

Q209,214
2SC3311-Q
SWITCHING

Q210, 212
UN4111
SWITCHING

Q37, 38
2SJ105GR
dbx dub/OFF

Q39, 40
2SK330GRY
dbx dub/ON

Q213
UN4214
SWITCHING

Q401~404, 501~508
2SC3311-Q
SWITCHING

Q220
UN4113
Dubbing/ON

IC902

1	10.4	Tape2 play:5.0	9	0	Tape2 PLAY→STOP:5.0
2	10.3	Tape2 PLAY:0	10	0	Tape1 STOP→PLAY:5.0
3	10.3	Tape2 Rec:0	11	0	Tape1 Rew.:5.0
4	10.3	Tape2 FF:0	12	0	Tape1 FF:5.0
5	10.3	Tape2 Rew:0	13	0	Tape1 Rec:5.0
6	0	Tape2 STOP→PLAY:5.0	14	0.2	Tape2 PLAY:5.0
7	6.0		15	0	Tape2 pause:5.0
8	0	Tape2 PLAY→STOP:5.0	16	12.7	

IC903

1	10.3	CONT:PLAY:0	9	0	Tape1 PLAY→STOP:5.0
2	10.3	MS:0	10	0	Tape1 STOP→PLAY:5.0
3	10.3	Tape1 PLAY:0	11	0	Tape1 Rew.:5.0
4	10.3	Tape1 FF:0	12	0	Tape1 FF:5.0
5	10.3	Tape1 Rew.:0	13	0.2	Tape1 Rec:5.0
6	0	Tape1 STOP→PLAY:5.0	14	0	Tape1 PLAY:5.0
7	6.0		15	0	Tape1 pause:5.0
8	0	Tape1 PLAY→STOP:5.0	16	12.7	

IC901
MN1564STJ
MICRO-COMPUTOR

■ SCHEMATIC DIAGRAM

I MAIN CIRCUIT SECTION

II DOLBY NR CIRCUIT SECTION

VII VOLUME CIRCUIT SECTION

IC1 M5220L P.B. EQ. AMP

IC2 M5220L P.B. EQ. AMP

IC3 M5220L MIX AMP

IC7 M5218L MS. AMP

IC8 M5218L LINE AMP

IC401, 402 TEA0665 Dolby NR

IC901 MN1564STJ MICRO-COMPUTOR

Q1, 2 2SC3311-Q P.B. EQ. PEAK

Q17, 18 2SK330GRY 70μS/120μS

Q13~16 2SK170BLV P.B. EQ. AMP

Q19, 20 2SD1330R REC/ON

Q202 2SC3311-Q REC/ON

Q204 UN4113 Tape 1 MUTE

Q21, 22 2SD1330R LINE IN MUTING

Q201 2SJ105GR dbx ON/OFF

Q9~12 2SC3311-Q MUTING

Q3, 4, 69, 70 2SK330GRY 120μS/ON

Q5~8 2SJ105GR X1/ON

Q920, 921, 926, 927 2SB1030Q FF/REW

Q916, 925 2SD946P SWITCHING

Q915 2SD592A

Q928 UN4113 SWITCHING

Q918, 922 2SC3311-Q SWITCHING

Q919, 924 UN4216

Q401~404, 501~508 2SC3311-Q SWITCHING

Q220 UN4113 Dubbing/ON

D208, 235, 236 1SS254

D201, 202 1SS254

PLAYBACK HEAD TAPE

RECORD/PLAYBACK HEAD

L ch

R ch

P.B. Gain Adj.

Bias Current Adj.

Dolby NR Adj.

B/C/OFF R/P

POWER SUPPLY

MPX FIL

MOTOR CONTROL

LINE IN

IC901 pin table

1	10.4	Tape2 Mouse: 0	9	0	Tape2 PLAY →STOP: 5.0
2	10.3	Tape2 Play: 0	10	0	Tape2 PLAY →STOP: 5.0
3	10.3	Tape2 Rec: 0	11	0	Tape2 Rew: 5.0
4	10.3	Tape2 FF: 0	12	0	Tape2 FF: 5.0
5	10.3	Tape2 Rew: 0	13	0	Tape2 Rec: 5.0
6	0	Tape2 STOP →PLAY: 0	14	0.2	Tape2 PLAY: 5.0
7	6.0		15	0	Tape2 pause: 5.0
8	0	Tape2 PLAY →STOP: 0	16	12.7	

IC902 pin table

1	10.3	CONT PLAY: 0	9	0	Tape1 PLAY →STOP: 5.0
2	10.3	MS: 0	10	0	Tape1 STOP →PLAY: 0
3	10.3	Tape1 PLAY: 0	11	0	Tape1 Rew: 5.0
4	10.3	Tape1 FF: 0	12	0	Tape1 FF: 5.0
5	10.3	Tape1 Rew: 0	13	0.2	Tape1 Rec: 5.0
6	0	Tape1 STOP →PLAY: 0	14	0	Tape1 PLAY: 5.0
7	6.0		15	0	Tape1 pause: 5.0
8	0	Tape1 PLAY →STOP: 0	16	12.7	

VII VOLUME CIRCUIT SECTION

Q21, 22
2SD1330R
LINE IN MUTING

Q920, 921, 926, 927
2SB1030Q
FF/REW

Q928
UN4113
SWITCHING

Q916, 925
2SD946P
SWITCHING

Q918, 922
2SC3311-Q
SWITCHING

Q915
2SD592A
SWITCHING

Q919, 924
UN4216
SWITCHING

Input Lever Adj.

Q901~904, 906~909
2SA546A-H
SWITCHING

Q905
UN4213
M.S. COMP.

From Graphic equalizer

IC902, 903
AN6270
DRIVE

Q910~914
UN4214
SWITCHING

Q929
2SD14230
SWITCHING

Q933
UN4213
SWITCHING

Q930,935,937,
939, 942, 944, 947
UN4214
SWITCHING

Q932, 934, 936,
938, 940, 946
UN4114
SWITCHING

Q941~951
2SA546A-H
SWITCHING

Q931
UN4213
REC MUTE

Q917, 923
UN4211
SWITCHING

Q948
2SK330GRY
TAPE SPEED

Q941, 943
2SA684-RNC
SWITCHING

Q945
2SC3311-Q
BRAKE

Bias Current Adj.

Q303
2SA546A-H
AUTO TAPE SELECTOR

Q301, 302, 306, 307
2SD592A
BIAS OSC

Erase Current Adj.

Q304
2SC3311-Q
BIAS OSC

Q305
2SB1030Q
BIAS ON/OFF

Erase Current Adj.

IC901
MN1564STJ
MICRO-COMPUTOR

Input Scanning
Time Adj.

D801~805, 924
1SS254

D901~905, 907, 908, 925
1SS254

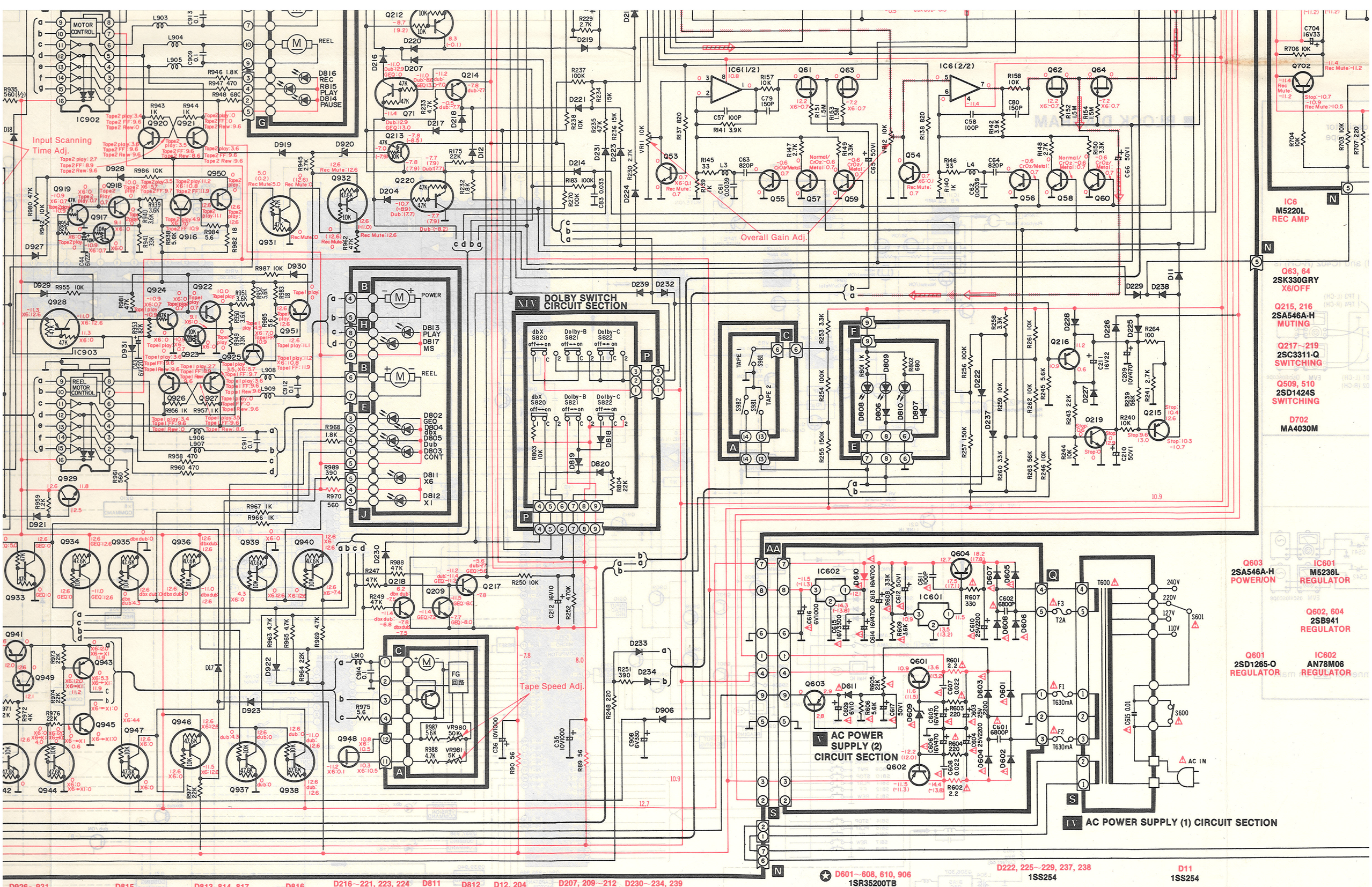
D909~919
1SS254

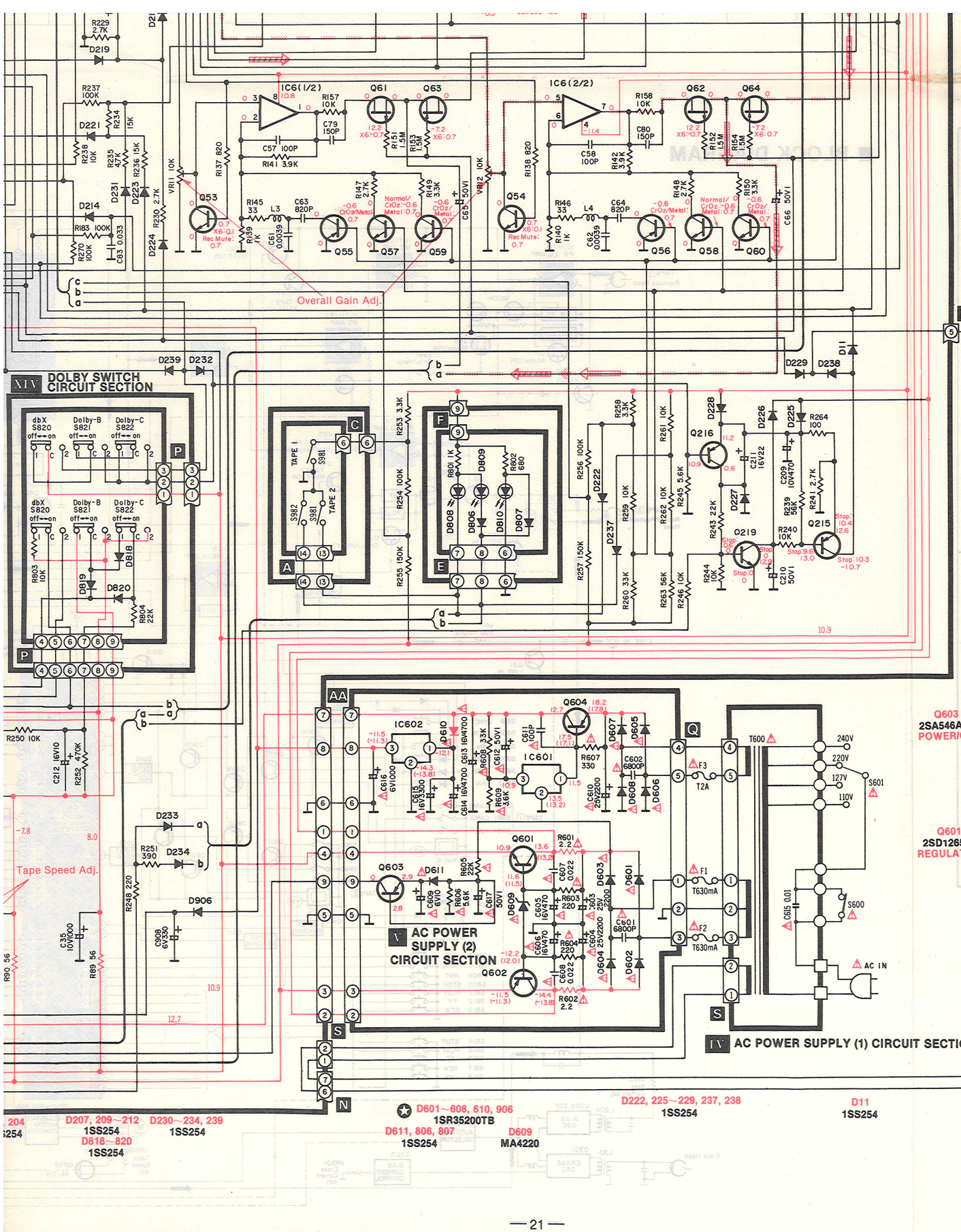
D921, 923
1SS254

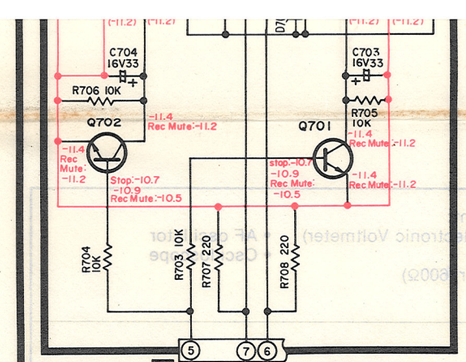
D926~931
1SS254

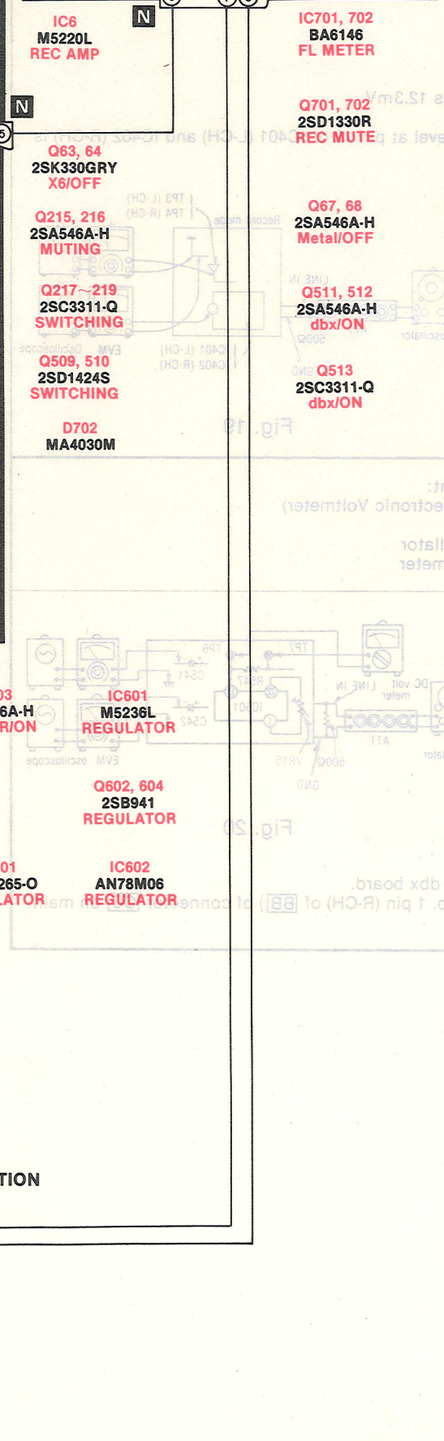
D815
SVGAY2202SB1
PLAY

D813, 814, 817
SVGPY2222SB1
PLAY/PAUSE/MS


IC902
MOTOR CONTROL
REEL
D816 REC
R815 PLAY
D814 PAUSE
Input Scanning Time Adj.
Overall Gain Adj.
Tape Speed Adj.
IC903
REEL MOTOR CONTROL
POWER
D813 PLAY
D817 MS
REEL
D802 GEQ
D804 dbx
D805 Dub
D803 CONT
D811 X6
D812 X1
XIV DOLBY SWITCH CIRCUIT SECTION
dbx S820 off⟷on
Dolby-B S821 off⟷on
Dolby-C S822 off⟷on
TAPE 1
TAPE 2
IC6(1/2)
IC6(2/2)
IC6 M5220L REC AMP
Q63, 64 2SK330GRY X6/OFF
Q215, 216 2SA546A-H MUTING
Q217~219 2SC3311-Q SWITCHING
Q509, 510 2SD1424S SWITCHING
D702 MA4030M
V AC POWER SUPPLY (2) CIRCUIT SECTION
IV AC POWER SUPPLY (1) CIRCUIT SECTION
Q603 2SA546A-H POWER/ON
IC601 M5236L REGULATOR
Q602, 604 2SB941 REGULATOR
Q601 2SD1265-O REGULATOR
IC602 AN78M06 REGULATOR
AC IN
240V
220V
127V
110V
S601
S600
T2A
T630mA
D926~931 1SS254
D815 SVGAY2202SB1 PLAY
D813, 814, 817 SVGPY2222SB1 PLAY/PAUSE/MS
D816 SVGPR2222SB1 REC
D216~221, 223, 224 1SS254
D920 MA4100M
D811 LN846RP X6 IND.
D812 LN346GP X1 IND.
D12, 204 1SS254
D207, 209~212 1SS254
D818~820 1SS254
D230~234, 239 1SS254
D601~608, 610, 906 1SR35200TB
D611, 806, 807 1SS254
D609 MA4220
D222, 225~229, 237, 238 1SS254
D11 1SS254





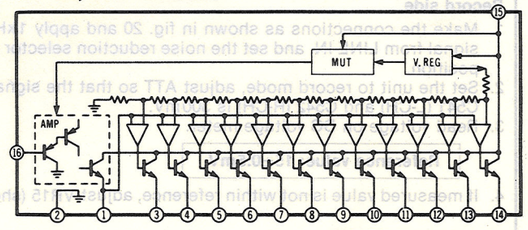


- ( ) indicates the flow of the playback signal.
- ( ) indicates the flow of the recording signal.
- ( ) indicates the flow of the dbx dubbing signal.
- ( ) indicates the flow of the equalizer dubbing signal.
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The part no. of diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark the production part No. are different from the replacement part No.
  Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.
- **The supply parts number is described alone in the replacement parts list.**
- **This schematic diagram may be modified at any time with the development of new technology.**

SPECIFICATIONS * Input level control...MAX

Playback S/N ratio * Test tape...QZZCFM	Greater than 45dB
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO_2 ...QZZCRZ for Metal	Normal... Less than 3.5% CrO_2, Metal... Less than 4%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

EQUIVALENT CIRCUIT
IC701, 702: BA6146



■ ELECTRICAL PARTS LIST

NOTES: RESISTORS
ERD.....Carbon
ERG .....Metal-oxide
ERS.....Metal-oxide
ERO .....Metal-film
ERX.....Metal-film
ERQ .....Fuse type metallic
ERC.....Solid
ERF.....Cement

CAPACITORS
ECBA .....Ceramic
ECG□.....Ceramic
ECK□.....Ceramic
ECC□.....Ceramic
ECF□.....Ceramic
ECQM.....Polyester film
ECQE .....Polyester film
ECQF .....Polypropylene
ECE□ .....Electrolytic
ECE□N ...Non polar electrolytic
ECQS .....Polystyrene
ECS□ .....Tantalum
QCS .....Tantalum

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Areas

* [E] For all European areas except United Kingdom. * [EH] For Holland.	* [XA] For Asia, Latin America, Middle East and Africa areas. * [XL] For Australia.

• RESISTORS

Ref. No.	Part No.	Value
R 1, 2	ERD25TJ104	100k
R 3, 4	ERD25FJ102	1k
R 5, 6	ERD25FJ560	56
R 7, 8	ERD25FJ910	91
R 9, 10	ERD25TJ823	82k
R 11, 12	ERD25TJ393	39k
R 13, 14	ERD25FJ221	220
R 15, 16, 17, 18	ERD25FJ332	3.3k
R 19, 20, 21, 22, 23, 24	ERD25TJ155	1.5M
R 25, 26	ERD25TJ563	56k
R 27, 28, 29, 30	ERD25FJ472	4.7k
R 31, 32	ERD25FJ821	820
R 33, 34	ERD25TJ473	47k
R 35, 36	ERD25FJ100	10
R 37, 38	ERD25TJ123	12k
R 39, 40	ERD25FJ100	10
R 41, 42, 43, 44, 45, 46	ERD25FJ472	4.7k
R 47, 48	ERD25FJ391	390
R 49, 50	ERD25FJ910	91
R 51, 52	ERD25TJ184	180k
R 53, 54	ERD25FJ562	5.6k
R 55, 56	ERD25FJ472	4.7k
R 57, 58	ERD25TJ155	1.5M
R 59, 60	ERD25TJ563	56k
R 61, 62	ERD25FJ392	3.9k
R 65, 66	ERD25TJ473	47k
R 67, 68	ERD25TJ223	22k
R 69, 70	ERD25TJ474	470k
R 71, 72	ERD25FJ681	680
R 81, 82	ERD25TJ105	1M
R 83, 84	ERD25TJ333	33k
R 85, 86	ERD25FJ682	6.8k
R 87, 88	ERD25FJ331	330
R 89, 90	ERDS1FJ560	56
R 91, 92, 93, 94	ERD25FJ102	1k
R 95, 96	ERD25FJ560	56
R 97, 98	ERD25FJ152	1.5k
R 99, 100	ERD25TJ474	470k
R 101, 102	ERD25TJ683	68k
R 103, 104	ERD25TJ273	27k
R 105, 106	ERD25TJ333	33k
R 107, 108	ERD25TJ124	120k
R 109, 110	ERD25FJ121	120
R 111, 112	ERD25FJ680	68
R 113, 114	ERD25FJ152	1.5k
R 115, 116, 117, 118, 119, 120, 121, 122	ERD25TJ155	1.5M
R 123, 124	ERD25FJ821	820
R 127, 128	ERD25FJ562	5.6k
R 129, 130	ERD25FJ102	1k
R 131, 132	ERD25FJ330	33
R 133, 134	ERD25FJ103	10k
R 135, 136	ERD25FJ272	2.7k
R 137, 138	ERD25FJ821	820
R 139, 140	ERD25FJ102	1k
R 141, 142	ERD25FJ392	3.9k
R 145, 146	ERD25FJ330	33
R 147, 148	ERD25FJ272	2.7k
R 149, 150	ERD25FJ332	3.3k
R 151, 152, 153, 154	ERD25TJ155	1.5M
R 157, 158	ERD25FJ103	10k
R 159, 160, 161, 162	ERD25FJ682	6.8k
R 163, 164	ERD25TJ474	470k
R 168	ERD25FJ472	4.7k
R 169, 170	ERD25FJ822	8.2k
R 171, 172	ERD25TJ473	47k
R 173, 174	ERD25TJ104	100k
R 176, 177	ERD25FJ103	10k
R 178, 179	ERD25TJ155	1.5M
R 181, 182	ERD25TJ153	15k
R 183, 184	ERD25TJ104	100k
R 201	ERD25TJ474	470k
R 202	ERD25FJ472	4.7k
R 203	ERD25TJ823	82k
R 204, 205	ERD25FJ472	4.7k
R 206	ERD25TJ104	100k
R 207	ERD25FJ101	100
R 208	ERD25TJ155	1.5M
R 209, 210	ERD25FJ272	2.7k
R 211	ERD25TJ153	15k
R 212	ERD25FJ472	4.7k
R 223	ERD25FJ332	3.3k
R 224	ERD25FJ103	10k
R 225	ERD25FJ272	2.7k
R 228	ERD25FJ221	220
R 229, 230	ERD25FJ272	2.7k
R 232	ERD25FJ182	1.8k
R 233	ERD25TJ473	47k
R 234	ERD25TJ153	15k
R 235	ERD25FJ472	4.7k
R 236	ERD25TJ153	15k
R 237	ERD25TJ104	100k
R 238	ERD25FJ103	10k
R 239	ERD25TJ563	56k
R 240	ERD25FJ103	10k
R 241	ERD25FJ272	2.7k
R 243	ERD25TJ223	22k
R 244	ERD25FJ103	10k
R 245	ERD25FJ562	5.6k
R 246	ERD25FJ103	10k
R 247	ERD25TJ473	47k
R 248	ERD25FJ221	220
R 249	ERD25TJ473	47k
R 250	ERD25FJ103	10k
R 251	ERD25FJ391	390
R 252	ERD25TJ474	470k
R 253	ERD25FJ332	3.3k
R 254	ERD25TJ104	100k
R 255	ERD25TJ154	150k
R 256	ERD25TJ104	100k
R 257	ERD25TJ154	150k
R 258	ERD25FJ332	3.3k
R 259	ERD25FJ103	10k
R 260	ERD25TJ333	33k
R 261, 262	ERD25FJ103	10k
R 263	ERD25TJ563	56k
R 264	ERD25FJ101	100
R 268, 269	ERD25FJ152	1.5k
R 270, 271	ERD25TJ104	100k
R 301	ERD25FJ1R0	1.0
R 302	ERD25FJ100	10
R 303, 304	ERD25FJ562	5.6k
R 305, 306	ERD25FJ100	10
R 307, 308	ERD25FJ222	2.2k
R 309	ERD25FJ562	5.6k
R 310	ERD25TJ473	47k
R 311	ERD25TJ223	22k
R 312	ERD25FJ472	4.7k
R 313, 314	ERD25TJ333	33k
R 315, 316	ERD25FJ100	10
R 401, 402	ERD25FJ242	2.4k
R 403, 404	ERD25FJ472	4.7k
R 405, 406	ERD25FJ332	3.3k
R 407, 408	ERD25FJ102	1k
R 409, 410	ERD25TJ333	33k
R 411, 412	ERD25TJ823	82k
R 413, 414	ERD25FJ122	1.2k
R 415, 416	ERD25FJ512	5.1k
R 417, 418	ERD25TJ683	68k
R 419, 420	ERD25FJ222	2.2k
R 421, 422	ERD25TJ823	82k
R 502	ERD10TLJ123U	12k
R 503, 504	ERD10TLJ102U	1k
R 505, 506, 507, 508	ERD10TLJ104U	100k
R 510	ERD10TLJ103U	10k
R 511, 512	ERD10TLJ563U	56k
R 513, 514	ERD10TLJ223U	22k
R 515, 516	ERD10TLJ332U	3.3k
R 517, 518	ERD10TLJ563U	56k
R 519, 520	ERD10TLJ153U	15k
R 521, 522	ERD10TLJ472U	4.7k
R 523, 524	ERD10TLJ822U	8.2k
R 525, 526	ERD10TLJ102U	1k
R 527, 528	ERD10TLJ103U	10k
R 529, 530	ERD10TLJ333U	33k
R 531, 532	ERD10TLJ151U	150
R 533, 534	ERD10TLJ472U	4.7k
R 535, 536	ERD10TLJ153U	15k
R 537, 538	ERD10TLJ154U	150k
R 539, 540	ERD10TLJ244U	240k
R 541, 542	EDR10TLJ472U	4.7k
R 543, 544, 545, 546	ERD10TLJ153U	15k
R 547	ERD10TLJ102U	1k
R 549, 550	ERD10TLJ332U	3.3k
R 551, 552	ERD10TLJ104U	100k
R 553, 554	ERD10TLJ102U	1k
R 555, 556	ERD10TLJ101U	100
R 557, 558	ERD10TLJ822U	8.2k
R 559	ERD10TLJ222U	2.2k
R 560	ERD10TLJ333U	33k
R 561	ERD10TLJ473U	47k
R 562	ERD10TLJ822U	8.2k
R 563, 564	ERD10TLJ153U	15k
R 601, 602 ⚠	ERD25FJ2R2	2.2
R 603, 604 ⚠	ERD25FJ221	220
R 605 ⚠	ERD25TJ223	22k
R 606 ⚠	ERD25FJ562	5.6k
R 607 ⚠	ERD25FJ331	330
R 608 ⚠	ERD25TJ333	33k
R 609 ⚠	ERD25FJ362	3.6k
R 701, 702, 703, 704, 705, 706 ⚠	ERD25FJ103	10k
R 707, 708	ERD25FJ221	220
R 801	ERD25FJ102	1k
R 802	ERD25FJ681	680
R 803	ERD25FJ103	10k
R 804	ERD25TJ223	22k
R 901, 902, 903, 904, 905, 906, 907, 908, 914	ERD25FJ472	4.7k
R 917	ERD25TJ123	12k
R 918	ERD25TJ473	47k
R 919, 920, 921, 922	ERD25FJ821	820
R 923	ERD25FJ272	2.7k
R 924	ERD25FJ101	100
R 925, 926, 927, 928	ERD25FJ821	820
R 929, 930, 931, 932	ERD25FJ272	2.7k
R 933, 934	ERD25FJ103	10k
R 935	ERD50FJ561	560
R 937	ERD25FJ821	820
R 938	ERD25FJ562	5.6k
R 939, 940	ERD25FJ362	3.6k
R 941	ERD25TJ333	33k
R 942	ERD25FJ103	10k
R 943, 944	ERD25FJ102	1k
R 945	ERD25FJ272	2.7k
R 946	ERD25FJ182	1.8k
R 947	ERD25FJ471	470
R 948	ERD25FJ681	680
R 949	ERD25TJ333	33k
R 950, 951	ERD25FJ362	3.6k
R 952	ERD25FJ562	5.6k
R 953, 954	ERD25TJ823	82k
R 955	ERD25FJ103	10k
R 956, 957	ERD25FJ102	1k
R 958	ERD25FJ471	470
R 959	ERD25FJ122	1.2k
R 960	ERD25FJ471	470
R 961	ERD25FJ561	560
R 962	ERD25TJ473	47k
R 963	ERD25FJ472	4.7k
R 964	ERD25TJ223	22k
R 965	ERD25FJ472	4.7k
R 966, 967	ERD25FJ102	1k
R 968	ERD25FJ182	1.8k
R 969	ERD25FJ272	2.7k
R 970	ERD25FJ561	560
R 971	ERD25TJ223	22k
R 972	ERD25FJ472	4.7k
R 973	ERD25TJ223	22k
R 974	ERD25FJ102	1k
R 975	ERX1ANJP5R6	5.6
R 977	ERD25TJ223	22k
R 980, 981	ERD25TJ473	47k
R 982, 983	ERD25FJ180	18
R 984, 985	ERD25FJ5R6	5.6
R 986, 987	ERD25FJ103	10k
R 988	ERD25TJ473	47k
R 989	ERD25FJ391	390
R 990, 991	ERD25FJ101	100
R 997	ERDS2TJ563	56k
R 998	ERDS2TJ472	4.7k
J 501 ~ 529	ERD10TL0U	0
J 531 ~ 533	ERD10TL0U	0

• CAPACITORS

Ref. No.	Part No.	Value
C 1, 2	ECCD1H220K	22p
C 3, 4	ECKD1H821KB	820p
C 5, 6	ECEA0JU101	100
C 7, 8	ECQB1H183JZ	0.018
C 9, 10	ECEA1HU4R7	4.7
C 11, 12	ECFDD103KX	0.01
C 13, 14	ECKD1H472ZF	4700p
C 15, 16	ECFDD182KV	1800p
C 17, 18	ECCD1H470K	47p
C 19, 20	ECKD1H102KB	1000p
C 21, 22	ECEA0JU101	100
C 23, 24	ECQB1H123JZ	0.012
C 25, 26	ECEA1HU4R7	4.7
C 27, 28	ECEA1HU010	1
C 29, 30	ECEA1EU4R7	4.7
C 33, 34, 35, 36	ECEA1AU102	1000
C 37, 38	ECEA0JU221	220
C 39, 40	ECEA1CN100	10
C 41, 42	ECKD1H391KB	390p
C 43, 44	ECCD1H220K	22p
C 45, 46	ECKD1H223ZF	0.022
C 47, 48	ECKD1H102KB	1000p
C 49, 50	ECEA1HUR47	0.47
C 51, 52	ECQB1H123JZ	0.012
C 53, 54	ECQB1H562JZ	5600p
C 55, 56	ECFDD472KV	4700p
C 57, 58	ECCD1H101K	100p
C 61, 62	ECQB1H392JZ	3900p
C 63, 64	ECKD1H821KB	820p
C 65, 66	ECEA1HU010	1
C 67, 68	ECCD2H101K	100p
C 69, 70	ECCD1H101K	100p
C 71, 72	ECEA1HU2R2	2.2
C 73, 74	ECEA1HUR47	0.47
C 75, 76	ECCD1H220K	22p
C 77, 78	ECQB1H682JZ	6800p
C 79, 80	ECKD1H151KB	150p
C 81, 82	ECKD1H681KB	680p
C 83	ECQM1H333JZ	0.033
C 201	ECQM1H334JZ	0.33
C 206	ECEA0JU331	330
C 208	ECEA0JU470	47
C 209	ECEA1AU471	470
C 210	ECEA1HU010	1
C 211	ECEA1CU220	22
C 212	ECEA1CU100	10
C 213	ECCD1H470K	47p
C 301	ECQP1153JZ	0.015
C 302	ECFDD153KX	0.015
C 303	ECFDD822KV	8200p
C 304	ECEA1HF100	10
C 305	ECQP1221JZ	220p
C 306	ECFDD332KV	3300p
C 307	ECFDD103KX	0.01
C 308	ECFDD332KV	3300p
C 309	ECEA1HF100	10
C 401, 402	ECKD1H152KB	1500p
C 403, 404	ECQB1H472JZ	4700p
C 405, 406	ECEA1CU100	10
C 407, 408	ECQM1H473JZ	0.047
C 409, 410	ECQM1H224JZ	0.22
C 411, 412	ECEA50MR68RB	0.68
C 413, 414	ECQB1H103JZ	0.01
C 415, 416	ECQB1H472JZ	4700p
C 417, 418	ECEA1CU100	10
C 419, 420	ECQM1H473JZ	0.047
C 421, 422	ECQM1H224JZ	0.22
C 423, 424	ECEA50MR68RB	0.68
C 425, 426	ECEA1EU4R7	4.7
C 427, 428	ECEA1CU100	10
C 429, 430	ECKD1H122KB	1200p
C 502	ECEA1CK100	10
C 503, 504	ECEA1HKR22	0.22
C 505, 506	ECEA50MR68R	0.68
C 507, 508	ECCD1H471J	470p
C 509, 510	ECQB1H223JZ	0.022
C 511, 512	ECEA1CU100	10
C 513, 514	ECQM1H333JZ	0.033
C 515, 516	ECEA0JU470	47
C 517, 518, 519, 520	ECQM1H104JZ	0.1
C 521, 522	ECEA50MR33R	0.33
C 523, 524	ECCD1H391J	390p
C 525, 526	ECQB1H472JZ	4700p
C 527, 528	ECQB1H223JZ	0.022
C 529, 530	ECQB1H332JZ	3300p
C 531	ECEA1CU100	10
C 532	ECEA1HN010S	1
C 533, 534	ECQB1H332JZ	3300p
C 535, 536	ECEA1CU100	10
C 537, 538	ECCD1H331K	330p
C 539, 540	ECEA1HUR33	0.33
C 541, 542	ECEA1CU100	10
C 543, 544	ECKD1H181KB	180p
C 601, 602 ⚠	ECKD2H682	6800p
C 603, 604 ⚠	ECEA1EU222	2200
C 605, 606 ⚠	ECEA1CU471	470
C 607, 608 ⚠	ECKD1H223ZF	0.022
C 609 ⚠	ECEA1CU100	10
C 610 ⚠	ECEA1EU222	2200
C 611 ⚠	ECCD1H101K	100p
C 612 ⚠	ECEA1HU010	1
C 613, 614 ⚠	ECEA1CS472	4700
C 615 ⚠	ECEU2A103MF	0.01
C 616 ⚠	ECEA0JU102	1000
C 617 ⚠	ECEA1HU010	1
C 701, 702	ECQM1H104JZ	0.1
C 703, 704	ECEA1CU330	33
C 901	ECEA0JU101	100
C 902	ECFDD473KX	0.047
C 903	ECCD1H121K	120p
C 904	ECEA1HU010	1
C 905, 906, 907	ECKD1H102KB	1000p
C 908	ECEA0JU331	330
C 909, 911, 912, 913, 914	ECFT1C104MXY	0.1

INTEGRATED CIRCUITS

Ref. No.	Part No.
IC 1, 2, 3	M5220L
IC 4, 5	M5218L
IC 6	M5220L
IC 7, 8	M5218L
IC 401, 402	TEA0665
IC 501	AN6291
IC 502	AN6551
IC 601	M5236L
IC 602	AN78M06
IC 701, 702	BA6146
IC 801, 802	DN6838-S
IC 901	MN1564STJ
IC 902, 903	AN6270

TRANSISTORS

Ref. No.	Part No.
Q 1, 2	2SC3311-Q
Q 3, 4	2SK330GRY
Q 5, 6, 7, 8	2SJ105GR
Q 9, 10, 11, 12	2SC3311-Q
Q 13, 14, 15, 16	2SK170BLV
Q 17, 18	2SK330GRY
Q 19, 20, 21, 22	2SD1330R
Q 25, 26	2SK330GRY
Q 27, 28	2SJ105GR
Q 29, 30, 31, 32	2SD1330R
Q 33, 34	2SJ105GR
Q 35, 36	2SK330GRY
Q 37, 38	2SJ105GR
Q 39, 40	2SK330GRY
Q 41, 42	2SJ105GR
Q 43, 44	2SK330GRY
Q 45	2SD1330R
Q 47	2SA1309Q
Q 48	2SA1309Q
Q 49, 50, 51, 52	2SC3311-Q
Q 53, 54	2SD1330R
Q 55, 56	2SA1309Q
Q 57, 58, 59, 60	2SC3311-Q
Q 61, 62	2SJ105GR
Q 63, 64	2SK330GRY
Q 65, 66	2SJ105GR
Q 67, 68	2SA1309Q
Q 69, 70	2SK330GRY
Q 71	UN4113
Q 201	2SJ105GR
Q 202	2SC3311-Q
Q 204, 205	UN4113
Q 206, 209	2SC3311-Q
Q 210, 212	UN4111
Q 213	UN4214
Q 214	2SC3311-Q
Q 215, 216	2SA1309Q
Q 217, 218, 219	2SC3311-Q
Q 220	UN4113
Q 301, 302	2SD592A
Q 303	2SA1309Q
Q 304	2SC3311-Q
Q 305	2SB1030Q
Q 306, 307	2SD592A
Q 401, 402, 403, 404	2SC3311-Q
Q 501, 502, 503, 504, 505, 506, 507, 508	2SC3311-Q
Q 509, 510	2SD1424R
Q 511, 512	2SA1309Q
Q 513	2SC3311-Q
Q 601	2SD1265-0
Q 602	2SB941
Q 603	2SA1309Q
Q 604	2SB941
Q 701, 702	2SD1330R
Q 901, 902, 903, 904	2SA1309Q
Q 905	UN4213
Q 906, 907, 908, 909	2SA1309Q
Q 910, 911, 912, 913, 914	UN4214
Q 915	2SD592A
Q 916	2SD946P
Q 917	UN4211
Q 918	2SC3311-Q
Q 919	UN4216
Q 920, 921	2SB1030Q
Q 922	2SC3311-Q
Q 923	UN4211
Q 924	UN4216
Q 925	2SD946P
Q 926, 927	2SB1030Q
Q 928	UN4113
Q 929	2SD14230
Q 930	UN4214
Q 931	UN4213
Q 932	UN4114
Q 933	UN4213
Q 934	UN4114
Q 935	UN4214
Q 936	UN4114
Q 937	UN4214
Q 938	UN4114
Q 939	UN4214
Q 940	UN4114
Q 941	2SA684-RNC
Q 942	UN4214
Q 943	2SA684-RNC
Q 944	UN4214
Q 945	2SC3311-Q
Q 946	UN4114
Q 947	UN4214
Q 948	2SK330GRY
Q 949, 950, 951	2SA1309Q

DIODES & RECTIFIERS

Ref. No.	Part No.
D 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1SS254
D 17, 18	1SS254
D 201, 202, 203, 204, 205	1SS254
D 206	MA4051M
D 207, 208, 209, 210, 211, 212	1SS254
D 214	1SS254
D 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233	1SS254
D 234, 235, 236, 237, 238, 239	1SS254
D 501	SVDMC911
D 601, 602, 603, 604, 605, 606, 607, 608 ⚠	SM112
D 609 ⚠	MA4220
D 610 ⚠	SM112
D 611 ⚠	1SS254
D 701	MA4051M
D 702	MA4030M
D 801, 802, 803, 804, 805, 806, 807	1SS254
D 808	LN242RP
D 809	LN342GPMS
D 810	LN442YPMS
D 811	LN846RP
D 812	LN346GP
D 813, 814	SVGPY2222SB1
D 815	SVGAY2202SB1
D 816	SVGPR2222SB1
D 817	SVGPY2222SB1
D 818, 819, 820	1SS254
D 901, 902, 903, 904, 905	1SS254
D 906 ⚠	SM112
D 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919	1SS254
D 920	MA4100M
D 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932	1SS254

VARIABLE RESISTORS

Ref. No.	Part No.
VR 1, 2	QVNB3A00B223
VR 5, 6	QVNB3A00B223
VR 7, 8	EVE00510A54S
VR 9, 10, 11, 12	QVNB3A00B103
VR 13, 14	EVM38GA00B15
VR 15	QVNB3A00B222
VR 301	QVNB3A00B103
VR 701, 702	EVNM0AA00B25
VR 901	QVNB3A00B223
VR 980	EVNM4AA00B54
VR 981	EVNM4AA00B53

COILS

Ref. No.	Part No.	Part Name & Description
L 1, 2	QLQX2722D	Peaking Coil
L 3, 4	SLQX561-1D	Choke Coil
L 5, 6	QLQX2722D	Peaking Coil
L 301	QLB0198KA	Erase Oscillation Coil
L 302, 303	QLQX2722D	Peaking Coil
L 304	SL09C15-Z	Bias Oscillation Coil
L 305	QLQX2722D	Peaking Coil
L 401, 402	QLM9Z10K	MPX Coil
L 403, 404	ELM7Q306A	Skewing Network
L 901, 902, 903, 904, 905, 906, 907, 908, 909, 910	ELEH101KA	Choke Coil

COMBINATION PARTS

Ref. No.	Part No.
Z 901, 902, 903, 904, 905	EXBEQ4472K
Z 907, 908, 909	EXBEQ4272K

FL METER

Ref. No.	Part No.
FL 1	SADBG269Z

TRANSFORMERS

Ref. No.	Part No.	Part Name & Description
T 600 [XA][XL] ⚠	SLT5L219-H	AC Power Transformer
T 600 [E][EH] ⚠	SLT5L218-H	AC Power Transformer

FUSES

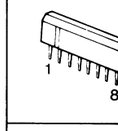
Ref. No.	Part No.	Part Name & Description
F 1, 2 ⚠	XBA2C06TR0	Fuse (T630mA)
F 3 ⚠	XBA2C20TR0	Fuse (T2A)

SWITCHES

Ref. No.	Part No.	Part Name & Description
S 600 ⚠	QSW1127AT	AC Power Switch
S 601 ⚠	SSR226	AC Power Voltage Selector
S 801	SSG13	Push Switch (Dubbing Tape Speed Select)
S 802	SSG20-5	Push Switch (dbx Dubbing)
S 803	SSG20-4	
S 804	SSG20-5	
S 805	SSG20-3	
S 806	QSS1306H	
S 807, 808, 809, 810, 811, 812	SSG13	
S 814, 815, 816, 817, 818, 819	SSG13	
S 820, 821, 822	SSH484-1	
S 981, 982, 983, 984	QSB0296C	
S 985	QSB0295C	

■ TERM

M5218L,M52
AN6551



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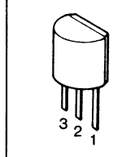

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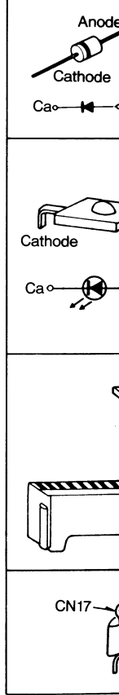


.....Polyester film
.....Polypropylene
.....Electrolytic
N ...Non polar electrolytic
.....Polystyrene
.....Tantalum
.....Tantalum

rica areas.

	Part No.	Value
	ERD25FJ103	10k
	ERD25TJ223	22k
	ERD25FJ472	4.7k
	ERD25TJ123	12k
	ERD25TJ473	47k
	ERD25FJ821	820
	ERD25FJ272	2.7k
	ERD25FJ101	100
	ERD25FJ821	820
	ERD25FJ272	2.7k
	ERD25FJ103	10k
	ERD50FJ561	560
	ERD25FJ821	820
	ERD25FJ562	5.6k
	ERD25FJ362	3.6k
	ERD25TJ333	33k
	ERD25FJ103	10k
	ERD25FJ102	1k
	ERD25FJ272	2.7k
	ERD25FJ182	1.8k
	ERD25FJ471	470
	ERD25FJ681	680
	ERD25TJ333	33k
	ERD25FJ362	3.6k
	ERD25FJ562	5.6k
	ERD25TJ823	82k
	ERD25FJ103	10k
	ERD25FJ102	1k
	ERD25FJ471	470
	ERD25FJ122	1.2k
	ERD25FJ471	470
	ERD25FJ561	560
	ERD25TJ473	47k
	ERD25FJ472	4.7k
	ERD25TJ223	22k
	ERD25FJ472	4.7k
	ERD25FJ102	1k
	ERD25FJ182	1.8k
	ERD25FJ272	2.7k
	ERD25FJ561	560
	ERD25TJ223	22k
	ERD25FJ472	4.7k
	ERD25TJ223	22k
	ERD25FJ102	1k
	ERX1ANJP5R6	5.6
	ERD25TJ223	22k
	ERD25TJ473	47k
	ERD25FJ180	18
	ERD25FJ5R6	5.6
	ERD25FJ103	10k
	ERD25TJ473	47k
	ERD25FJ391	390
	ERD25FJ101	100
	ERDS2TJ563	56k
	ERDS2TJ472	4.7k
	ERD10TL0U	0
	ERD10TL0U	0

• CAPACITORS

Ref. No.	Part No.	Value
C 1, 2	ECCD1H220K	22p
C 3, 4	ECKD1H821KB	820p
C 5, 6	ECEA0JU101	100
C 7, 8	ECQB1H183JZ	0.018
C 9, 10	ECEA1HU4R7	4.7
C 11, 12	ECFDD103KX	0.01
C 13, 14	ECKD1H472ZF	4700p
C 15, 16	ECFDD182KV	1800p
C 17, 18	ECCD1H470K	47p
C 19, 20	ECKD1H102KB	1000p
C 21, 22	ECEA0JU101	100
C 23, 24	ECQB1H123JZ	0.012
C 25, 26	ECEA1HU4R7	4.7
C 27, 28	ECEA1HU010	1
C 29, 30	ECEA1EU4R7	4.7
C 33, 34, 35, 36	ECEA1AU102	1000
C 37, 38	ECEA0JU221	220
C 39, 40	ECEA1CN100	10
C 41, 42	ECKD1H391KB	390p
C 43, 44	ECCD1H220K	22p
C 45, 46	ECKD1H223ZF	0.022
C 47, 48	ECKD1H102KB	1000p
C 49, 50	ECEA1HUR47	0.47
C 51, 52	ECQB1H123JZ	0.012
C 53, 54	ECQB1H562JZ	5600p
C 55, 56	ECFDD472KV	4700p
C 57, 58	ECCD1H101K	100p
C 61, 62	ECQB1H392JZ	3900p
C 63, 64	ECKD1H821KB	820p
C 65, 66	ECEA1HU010	1
C 67, 68	ECCD2H101K	100p
C 69, 70	ECCD1H101K	100p
C 71, 72	ECEA1HU2R2	2.2
C 73, 74	ECEA1HUR47	0.47
C 75, 76	ECCD1H220K	22p
C 77, 78	ECQB1H682JZ	6800p
C 79, 80	ECKD1H151KB	150p
C 81, 82	ECKD1H681KB	680p
C 83	ECQM1H333JZ	0.033
C 201	ECQM1H334JZ	0.33
C 206	ECEA0JU331	330
C 208	ECEA0JU470	47
C 209	ECEA1AU471	470
C 210	ECEA1HU010	1
C 211	ECEA1CU220	22
C 212	ECEA1CU100	10
C 213	ECCD1H470K	47p
C 301	ECQP1153JZ	0.015
C 302	ECFDD153KX	0.015
C 303	ECFDD822KV	8200p
C 304	ECEA1HF100	10
C 305	ECQP1221JZ	220p
C 306	ECFDD332KV	3300p
C 307	ECFDD103KX	0.01
C 308	ECFDD332KV	3300p
C 309	ECEA1HF100	10
C 401, 402	ECKD1H152KB	1500p
C 403, 404	ECQB1H472JZ	4700p
C 405, 406	ECEA1CU100	10
C 407, 408	ECQM1H473JZ	0.047
C 409, 410	ECQM1H224JZ	0.22
C 411, 412	ECEA50MR68RB	0.68
C 413, 414	ECQB1H103JZ	0.01
C 415, 416	ECQB1H472JZ	4700p
C 417, 418	ECEA1CU100	10
C 419, 420	ECQM1H473JZ	0.047
C 421, 422	ECQM1H224JZ	0.22
C 423, 424	ECEA50MR68RB	0.68
C 425, 426	ECEA1EU4R7	4.7
C 427, 428	ECEA1CU100	10
C 429, 430	ECKD1H122KB	1200p
C 502	ECEA1CK100	10
C 503, 504	ECEA1HKR22	0.22
C 505, 506	ECEA50MR68R	0.68
C 507, 508	ECCD1H471J	470p
C 509, 510	ECQB1H223JZ	0.022
C 511, 512	ECEA1CU100	10
C 513, 514	ECQM1H333JZ	0.033
C 515, 516	ECEA0JU470	47
C 517, 518, 519, 520	ECQM1H104JZ	0.1
C 521, 522	ECEA50MR33R	0.33
C 523, 524	ECCD1H391J	390p
C 525, 526	ECQB1H472JZ	4700p
C 527, 528	ECQB1H223JZ	0.022
C 529, 530	ECQB1H332JZ	3300p
C 531	ECEA1CU100	10
C 532	ECEA1HN010S	1
C 533, 534	ECQB1H332JZ	3300p
C 535, 536	ECEA1CU100	10
C 537, 538	ECCD1H331K	330p
C 539, 540	ECEA1HUR33	0.33
C 541, 542	ECEA1CU100	10
C 543, 544	ECKD1H181KB	180p
C 601, 602 ⚠	ECKD2H682	6800p
C 603, 604 ⚠	ECEA1EU222	2200
C 605, 606 ⚠	ECEA1CU471	470
C 607, 608 ⚠	ECKD1H223ZF	0.022
C 609 ⚠	ECEA1CU100	10
C 610 ⚠	ECEA1EU222	2200
C 611 ⚠	ECCD1H101K	100p
C 612 ⚠	ECEA1HU010	1
C 613, 614 ⚠	ECEA1CS472	4700
C 615 ⚠	ECEU2A103MF	0.01
C 616 ⚠	ECEA0JU102	1000
C 617 ⚠	ECEA1HU010	1
C 701, 702	ECQM1H104JZ	0.1
C 703, 704	ECEA1CU330	33
C 901	ECEA0JU101	100
C 902	ECFDD473KX	0.047
C 903	ECCD1H121K	120p
C 904	ECEA1HU010	1
C 905, 906, 907	ECKD1H102KB	1000p
C 908	ECEA0JU331	330
C 909, 911, 912, 913, 914	ECFT1C104MXY	0.1

INTEGRATED CIRCUITS

IC 1, 2, 3	M5220L
IC 4, 5	M5218L
IC 6	M5220L
IC 7, 8	M5218L
IC 401, 402	TEA0665
IC 501	AN6291
IC 502	AN6551
IC 601	M5236L
IC 602	AN78M06
IC 701, 702	BA6146
IC 801, 802	DN6838-S
IC 901	MN1564STJ
IC 902, 903	AN6270

TRANSISTORS

Q 1, 2	2SC3311-Q
Q 3, 4	2SK330GRY
Q 5, 6, 7, 8	2SJ105GR
Q 9, 10, 11, 12	2SC3311-Q
Q 13, 14, 15, 16	2SK170BLV
Q 17, 18	2SK330GRY
Q 19, 20, 21, 22	2SD1330R
Q 25, 26	2SK330GRY
Q 27, 28	2SJ105GR
Q 29, 30, 31, 32	2SD1330R
Q 33, 34	2SJ105GR
Q 35, 36	2SK330GRY
Q 37, 38	2SJ105GR
Q 39, 40	2SK330GRY
Q 41, 42	2SJ105GR
Q 43, 44	2SK330GRY
Q 45	2SD1330R
Q 47	2SA1309Q
Q 48	2SA1309Q
Q 49, 50, 51, 52	2SC3311-Q
Q 53, 54	2SD1330R
Q 55, 56	2SA1309Q
Q 57, 58, 59, 60	2SC3311-Q
Q 61, 62	2SJ105GR
Q 63, 64	2SK330GRY
Q 65, 66	2SJ105GR
Q 67, 68	2SA1309Q
Q 69, 70	2SK330GRY
Q 71	UN4113
Q 201	2SJ105GR
Q 202	2SC3311-Q
Q 204, 205	UN4113
Q 206, 209	2SC3311-Q
Q 210, 212	UN4111
Q 213	UN4214
Q 214	2SC3311-Q
Q 215, 216	2SA1309Q
Q 217, 218, 219	2SC3311-Q
Q 220	UN4113
Q 301, 302	2SD592A
Q 303	2SA1309Q
Q 304	2SC3311-Q
Q 305	2SB1030Q
Q 306, 307	2SD592A
Q 401, 402, 403, 404	2SC3311-Q
Q 501, 502, 503, 504, 505, 506, 507, 508	2SC3311-Q
Q 509, 510	2SD1424R
Q 511, 512	2SA1309Q
Q 513	2SC3311-Q
Q 601	2SD1265-0
Q 602	2SB941
Q 603	2SA1309Q
Q 604	2SB941
Q 701, 702	2SD1330R
Q 901, 902, 903, 904	2SA1309Q
Q 905	UN4213
Q 906, 907, 908, 909	2SA1309Q
Q 910, 911, 912, 913, 914	UN4214
Q 915	2SD592A
Q 916	2SD946P
Q 917	UN4211
Q 918	2SC3311-Q
Q 919	UN4216
Q 920, 921	2SB1030Q
Q 922	2SC3311-Q
Q 923	UN4211
Q 924	UN4216
Q 925	2SD946P
Q 926, 927	2SB1030Q
Q 928	UN4113
Q 929	2SD14230
Q 930	UN4214
Q 931	UN4213
Q 932	UN4114
Q 933	UN4213
Q 934	UN4114
Q 935	UN4214
Q 936	UN4114
Q 937	UN4214
Q 938	UN4114
Q 939	UN4214
Q 940	UN4114
Q 941	2SA684-RNC
Q 942	UN4214
Q 943	2SA684-RNC
Q 944	UN4214
Q 945	2SC3311-Q
Q 946	UN4114
Q 947	UN4214
Q 948	2SK330GRY
Q 949, 950, 951	2SA1309Q

DIODES & RECTIFIERS

D 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1SS254
D 17, 18	1SS254
D 201, 202, 203, 204, 205	1SS254
D 206	MA4051M
D 207, 208, 209, 210, 211, 212	1SS254
D 214	1SS254
D 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233	1SS254
D 234, 235, 236, 237, 238, 239	1SS254
D 501	SVDMC911
D 601, 602, 603, 604, 605, 606, 607, 608	⚠ SM112
D 609 ⚠	MA4220
D 610 ⚠	SM112
D 611 ⚠	1SS254
D 701	MA4051M
D 702	MA4030M
D 801, 802, 803, 804, 805, 806, 807	1SS254
D 808	LN242RP
D 809	LN342GPMS
D 810	LN442YPMS
D 811	LN846RP
D 812	LN346GP
D 813, 814	SVGPY2222SB1
D 815	SVGAY2202SB1
D 816	SVGPR2222SB1
D 817	SVGPY2222SB1
D 818, 819, 820	1SS254
D 901, 902, 903, 904, 905	1SS254
D 906 ⚠	SM112
D 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919	1SS254
D 920	MA4100M
D 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932	1SS254

VARIABLE RESISTORS

VR 1, 2	QVNB3A00B223
VR 5, 6	QVNB3A00B223
VR 7, 8	EVE00510A54S
VR 9, 10, 11, 12	QVNB3A00B103
VR 13, 14	EVM38GA00B15
VR 15	QVNB3A00B222
VR 301	QVNB3A00B103
VR 701, 702	EVNM0AA00B25
VR 901	QVNB3A00B223
VR 980	EVNM4AA00B54
VR 981	EVNM4AA00B53

COILS

L 1, 2	QLQX2722D	Peaking Coil
L 3, 4	SLQX561-1D	Choke Coil
L 5, 6	QLQX2722D	Peaking Coil
L 301	QLB0198KA	Erase Oscillation Coil
L 302, 303	QLQX2722D	Peaking Coil
L 304	SL09C15-Z	Bias Oscillation Coil
L 305	QLQX2722D	Peaking Coil
L 401, 402	QLM9Z10K	MPX Coil
L 403, 404	ELM7Q306A	Skewing Network
L 901, 902, 903, 904, 905, 906, 907, 908, 909, 910	ELEH101KA	Choke Coil

COMBINATION PARTS

Z 901, 902, 903, 904, 905	EXBEQ4472K
Z 907, 908, 909	EXBEQ4272K

FL METER

FL 1	SADBG269Z	

TRANSFORMERS

T 600 [XA][XL] ⚠	SLT5L219-H	AC Power Transformer
T 600 [E][EH] ⚠	SLT5L218-H	AC Power Transformer

FUSES

F 1, 2 ⚠	XBA2C06TR0	Fuse (T630mA)
F 3 ⚠	XBA2C20TR0	Fuse (T2A)

SWITCHES

S 600 ⚠	QSW1127AT	AC Power Switch
S 601 ⚠	SSR226	AC Power Voltage Selector
S 801	SSG13	Push Switch (Dubbing Tape Speed Select)
S 802	SSG20-5	Push Switch (dbx Dubbing)
S 803	SSG20-4	Push Switch (Cont. Play)
S 804	SSG20-5	Push Switch (Graphic Equalizer Dubbing)
S 805	SSG20-3	Push Switch (Dubbing)
S 806	QSS1306H	Timer Switch
S 807, 808, 809, 810, 811, 812, 813	SSG13	Tape [2] Operation Switches
S 814, 815, 816, 817, 818, 819	SSG13	Tape [1] Operation Switches
S 820, 821, 822	SSH484-1	NR Switch
S 981, 982, 983, 984	QSB0296C	Leaf Switch (CrO_2, Metal, Rec Inhibit, Half)
S 985	QSB0295C	Leaf Switch (Mode)

JACK

J 1	SFDYG5A237P	Headphones Jack

RELAY

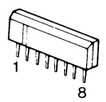
RL 1	SFDYG5A273P	Relay

CONNECTORS

CN 1	QJS1920TN	2 Pin Socket
CN 2	QJP1920TN	3 Pin Plug
CN 3	QJS1922TN	6 Pin Socket
CN 4	QJP1922TN	6 Pin Plug
CN 5	QJP1923TN	9 Pin Plug
CN 6	QJS1923TN	9 Pin Socket
CN 7	QJP1925TN	15 Pin Plug
CN 8	QJS1925TN	15 Pin Socket
CN 9	SJS5327	Jumper Connector (3 Pin)
CN 10	SJS5519	Jumper Connector (5 Pin)
CN 11	SJS5707	Jumper Connector (7 Pin)
CN 12	SJS5903	Jumper Connector (9 Pin)
CN 13	SJT3607	6 Pin Post
CN 14	SJT3901	9 Pin Post
CN 15	SJS5625	6 Pin Socket
CN 16	SJS5901	9 Pin Socket
CN 17	QJT1090	Check Pin
CN 18	SJT777	Pin Terminal
CN 20	QJT1054	Contact

■ TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S

M5218L, M5219L, AN6551



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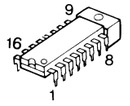
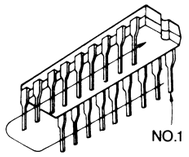
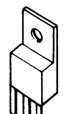




BA6146	16 Pin
AN6291	22 Pin
TEA0665	28 Pin
MN1564STJ	64 Pin

AN78M06



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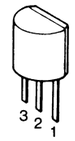

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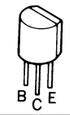
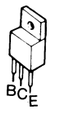
2SB1030-Q, 2SD592-A, 2SC1384A-R, 2SA684-RNC



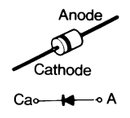
2SK170BLV, 2SK330GRY, 2SJ105GR

2SD1330-R, 2SD1423-O, 2SD1424-S

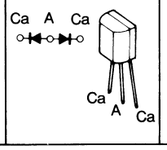
2SB941, 2SD1265-0

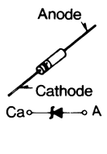


SM112, 1SS254

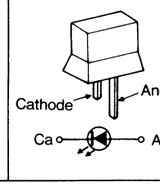


SVDMC911

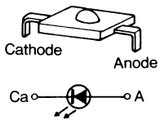




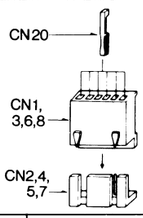
MA4220, MA4051M, MA4100H, MA4030M



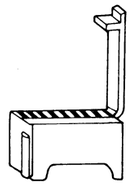
LN242RP	RED
LN342GPG	GRN
LN346GP	GRN
LN846RP	RED
LN442YP	YEL



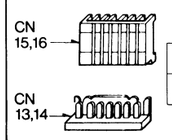
SVGPY2222SB1	YEL
SVGPR2222SB1	RED
SVGAY2202SB1	YEL



2 Pin	CN1	QJS1920TN	CN2	QJP1920TN
6 Pin	CN3	QJS1922TN	CN4	QJP1922TN
9 Pin	CN5	QJP1923TN	CN6	QJS1923TN
15 Pin	CN7	QJP1925TN	CN8	QJS1925TN
	CN20	QJT1054		



CN9	SJS5327	3 Pin
CN10	SJS5519	5 Pin
CN11	SJS5707	7 Pin
CN12	SJS5903	9 Pin

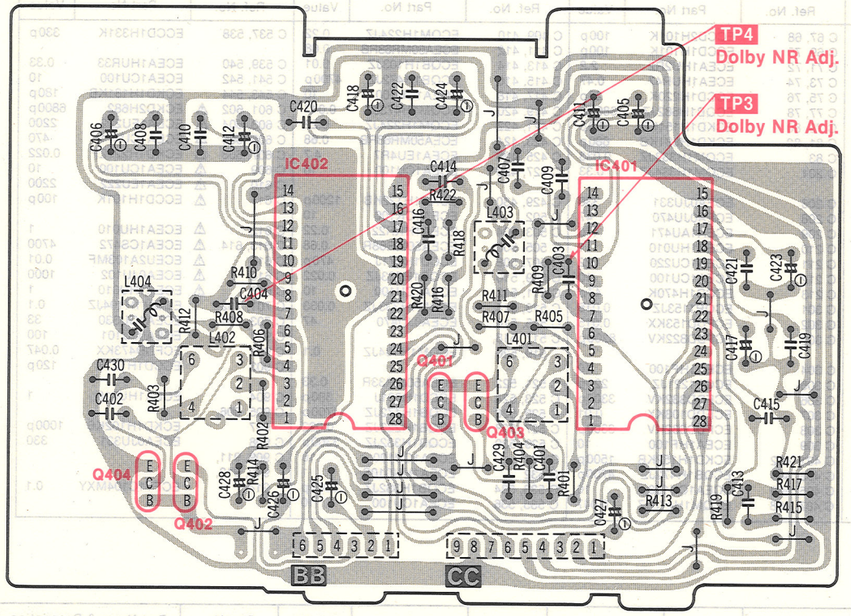


6 Pin	CN13	SJT3607	CN15	SJS5625
9 Pin	CN14	SJT3901	CN16	SJS5901

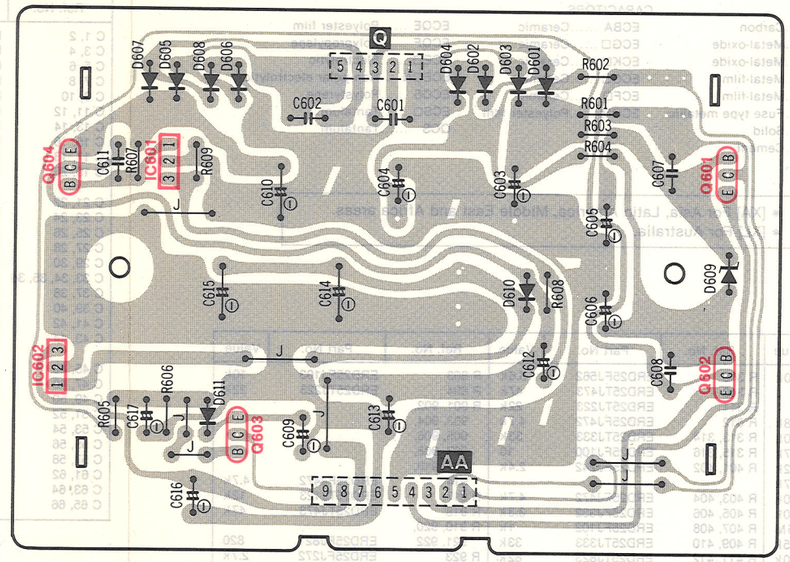
CN17	QJT1090

CN18	SJT777

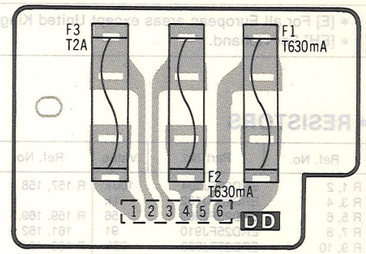
II DOLBY NR P.C.B.



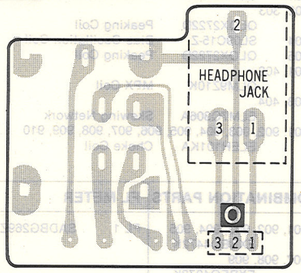
V AC POWER SUPPLY (2) P.C.B.



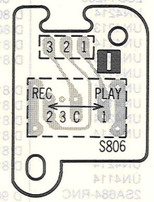
XVII FUSE P.C.B.



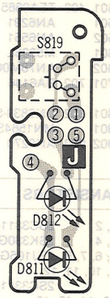
XIII HEADPHONES P.C.B.



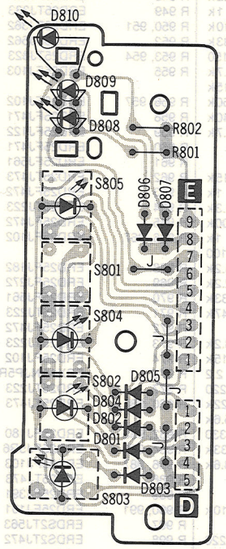
XII TIMER SWITCH P.C.B.



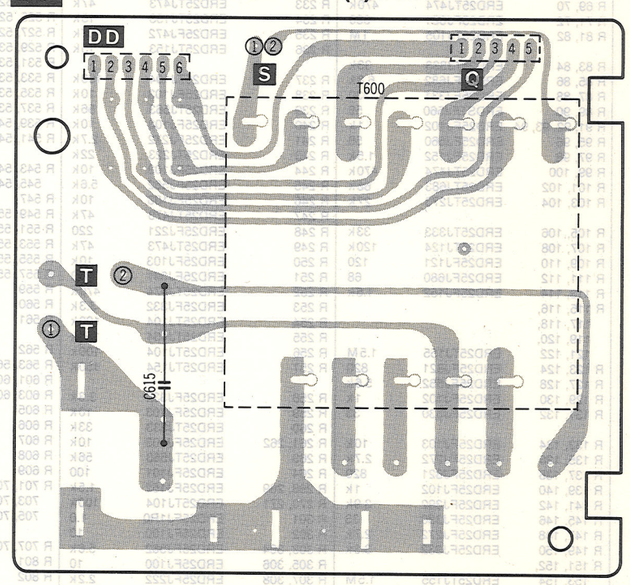
X SYNCHRO SWITCH P.C.B.



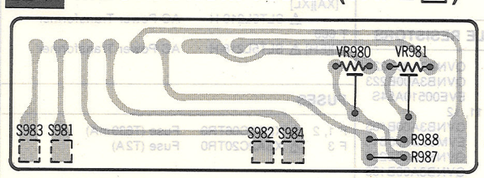
XI DUBBING SWITCH P.C.B.



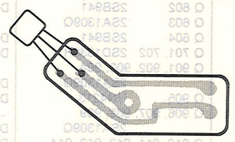
IV AC POWER SUPPLY (1) P.C.B.



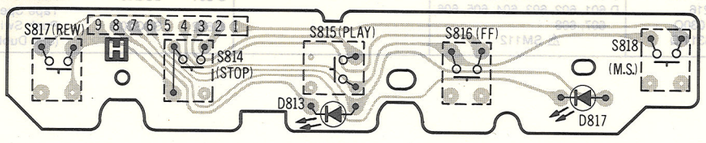
XV MECHANISM P.C.B. (TAPE 2)

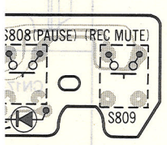


XVI HALL IC P.C.B. (TAPE 1, 2)



VIII OPERATION SWITCH (1) P.C.B.

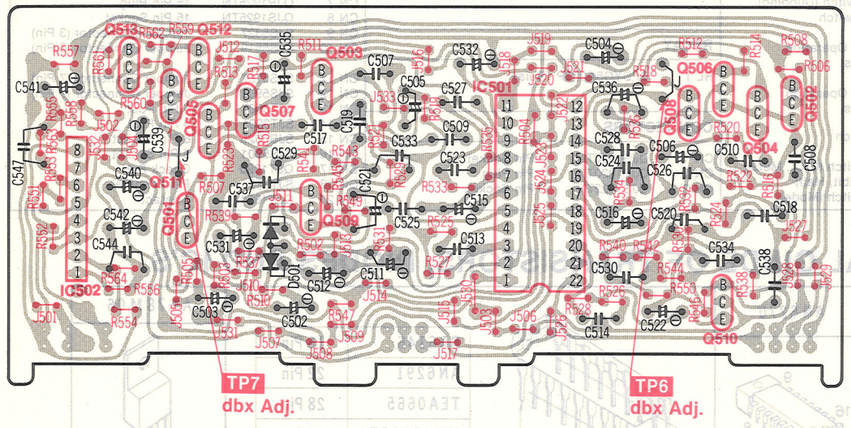




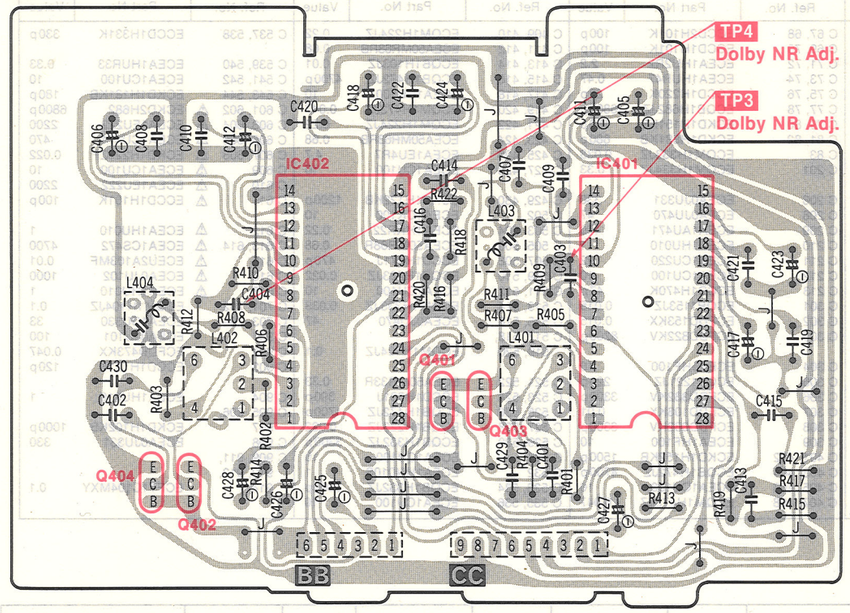
RS-B66W RS-B66W

■ PRINTED CIRCUIT BOARD

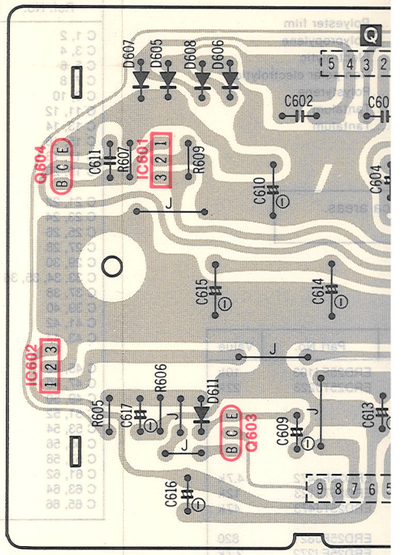
III dbx P.C.B.



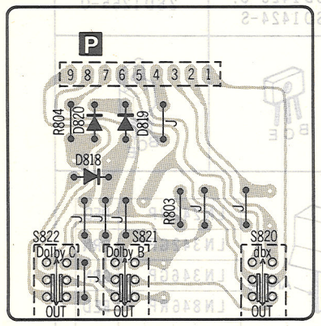
II DOLBY NR P.C.B.



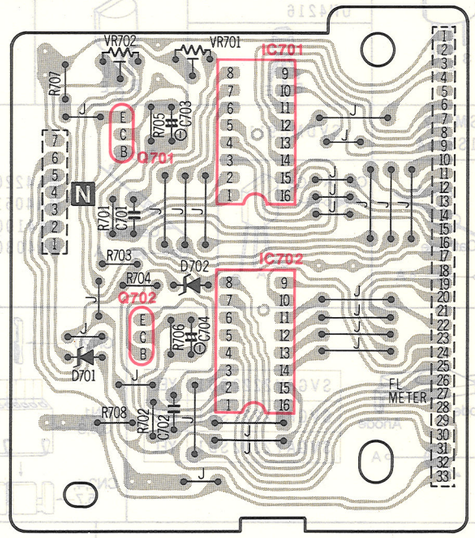
V AC POWER SUPPLY (2) P.C



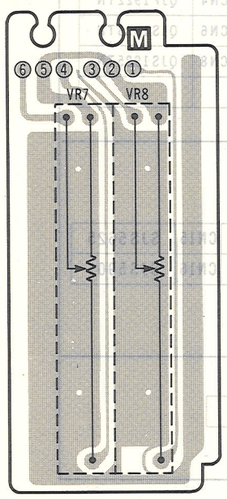
XIV DOLBY SWITCH P.C.B.



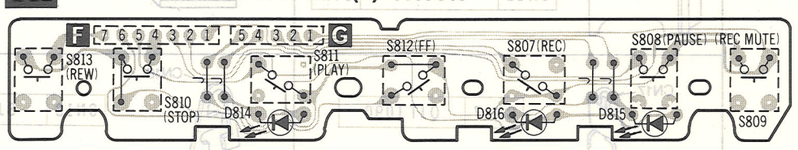
VI FL METER P.C.B.



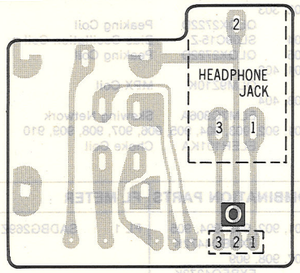
VII VOLUME P.C.B.



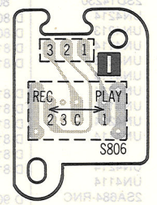
IX OPERATION SWITCH (2) P.C.B.



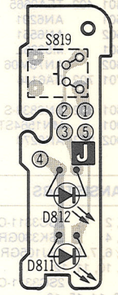
XIII HEADPHONES P.C.B.



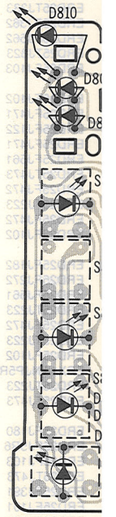
XII TIMER SWITCH P.C.B.



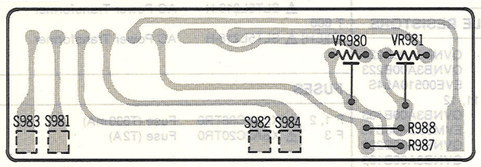
X SYNCHRO SWITCH P.C.B.



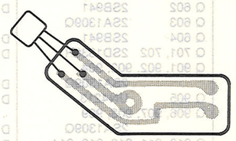
XI DUBBING



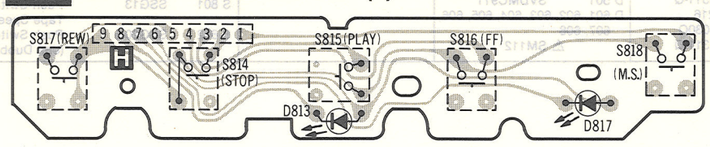
XV MECHANISM P.C.B. (TAPE 2)



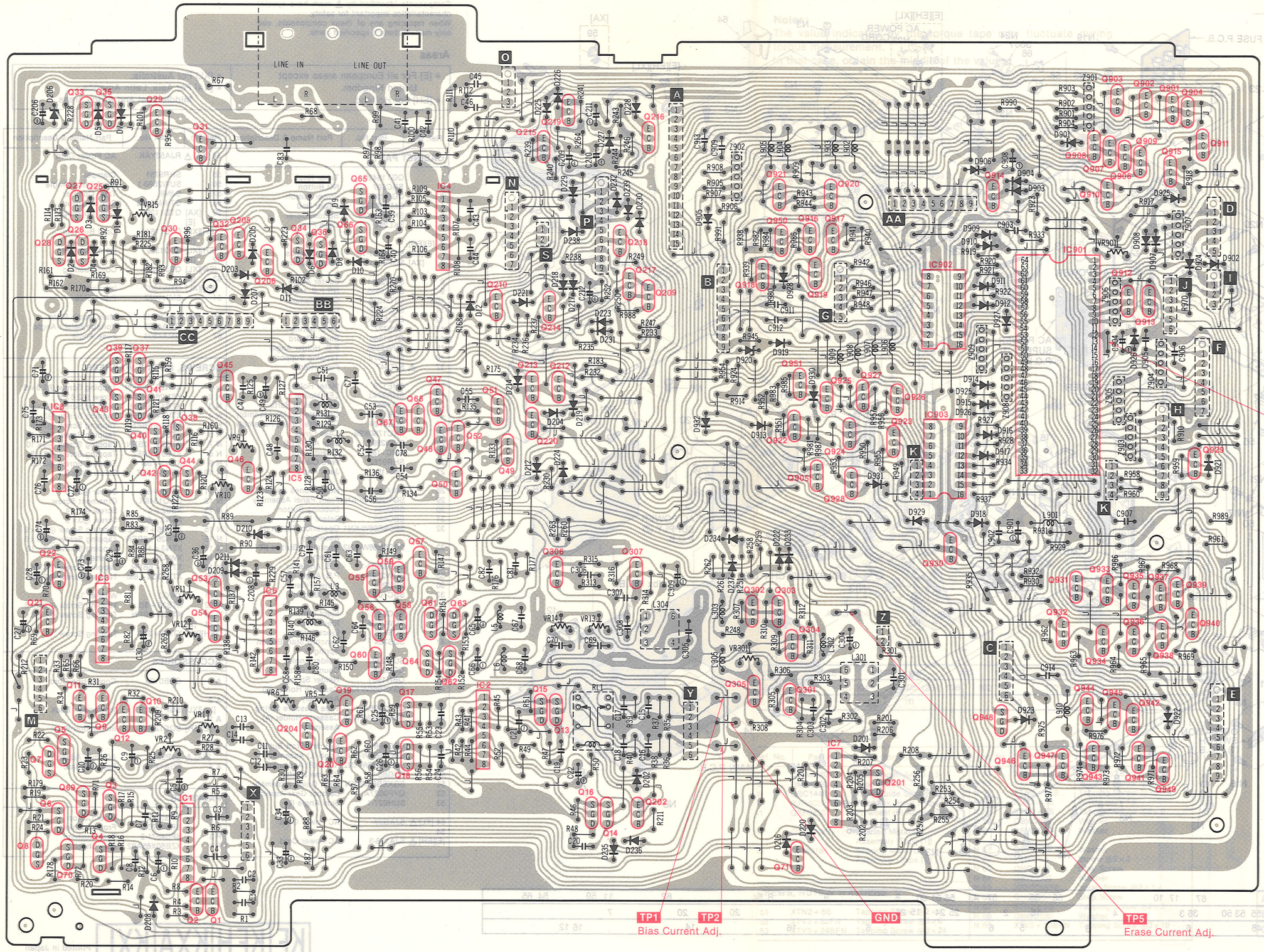
XVI HALL IC P.C.B. (TAPE 1, 2)



VIII OPERATION SWITCH (1) P.C.B.

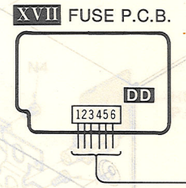


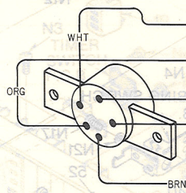
I MAIN P.C.B.



■ WIRING CO

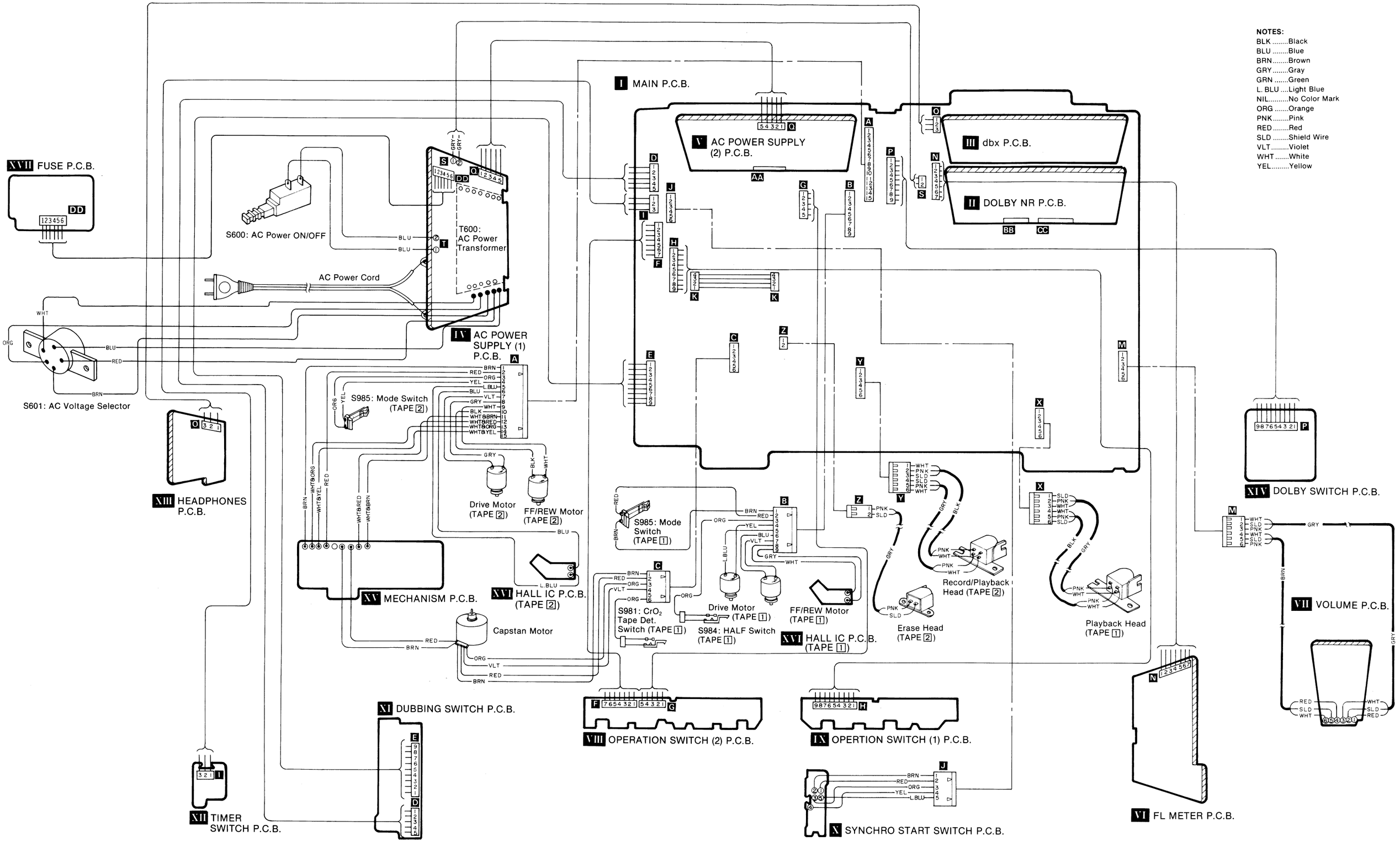
XVII FUSE P.C.B.





S601: AC Voltage Selecto

■ WIRING CONNECTION DIAGRAM

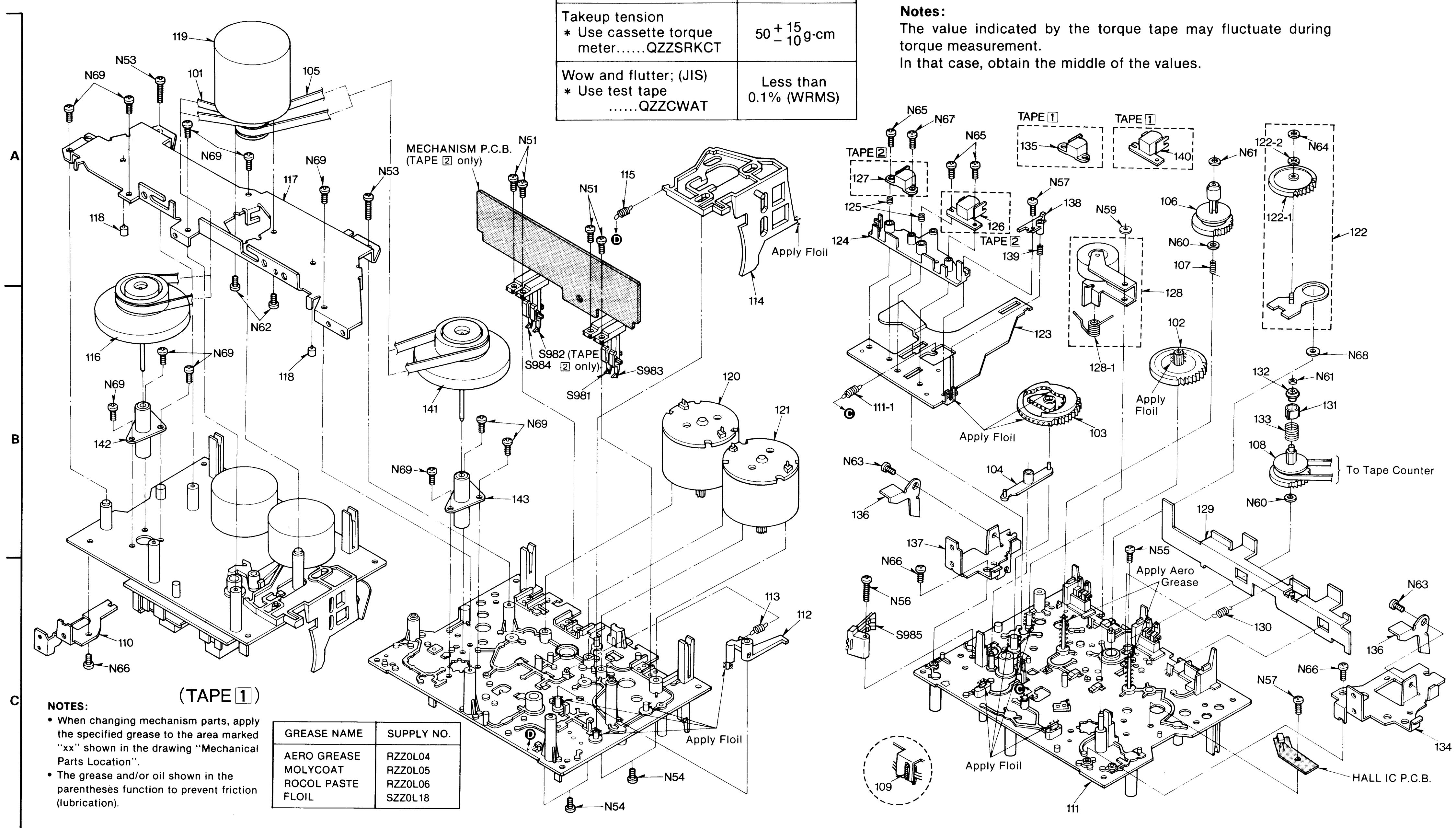


■ MECHANICAL PARTS LOCATION

SPECIFICATIONS

Pressure of pinch roller	400±50g
Takeup tension ∗ Use cassette torque meter......QZZSRKCT	50^{+15}_{-10} g-cm
Wow and flutter; (JIS) ∗ Use test tape ......QZZCWAT	Less than 0.1% (WRMS)

Notes:
The value indicated by the torque tape may fluctuate during torque measurement.
In that case, obtain the middle of the values.



NOTES:
- When changing mechanism parts, apply the specified grease to the area marked "xx" shown in the drawing "Mechanical Parts Location".
- The grease and/or oil shown in the parentheses function to prevent friction (lubrication).

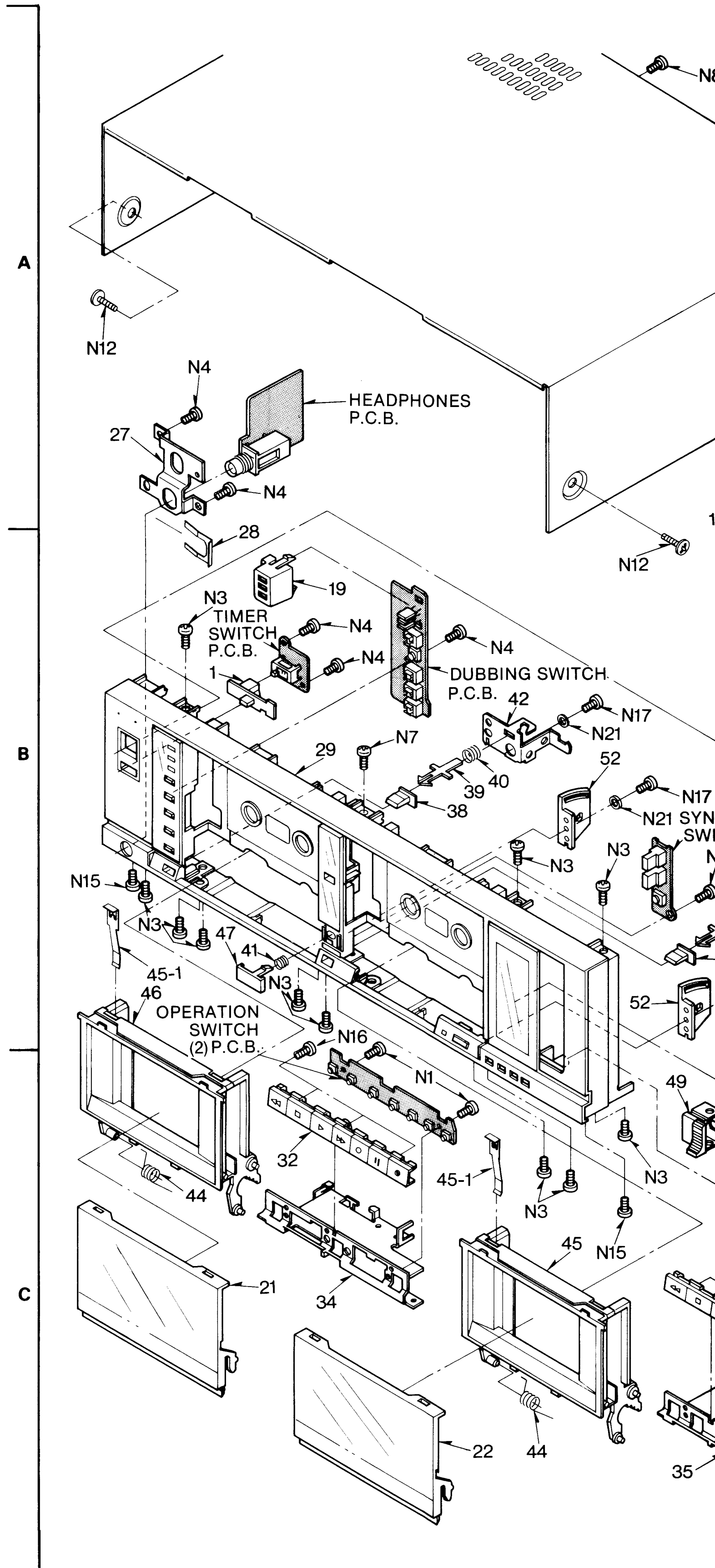
GREASE NAME	SUPPLY NO.
AERO GREASE	RZZ0L04
MOLYCOAT	RZZ0L05
ROCOL PASTE	RZZ0L06
FLOIL	SZZ0L18

A	118 101 119 117 105 115 114 124 125 127 125 126 139 138 135 140 106 107 122-2 122-1 122
B	116 142 118 141 143 S984 S982 S981 S983 120 121 111-1 136 137 123 104 103 128-1 128 102 129 132 108 133 131
C	110 113 112 S985 109 111 130 136 134

REPLACEMENT PARTS LIST

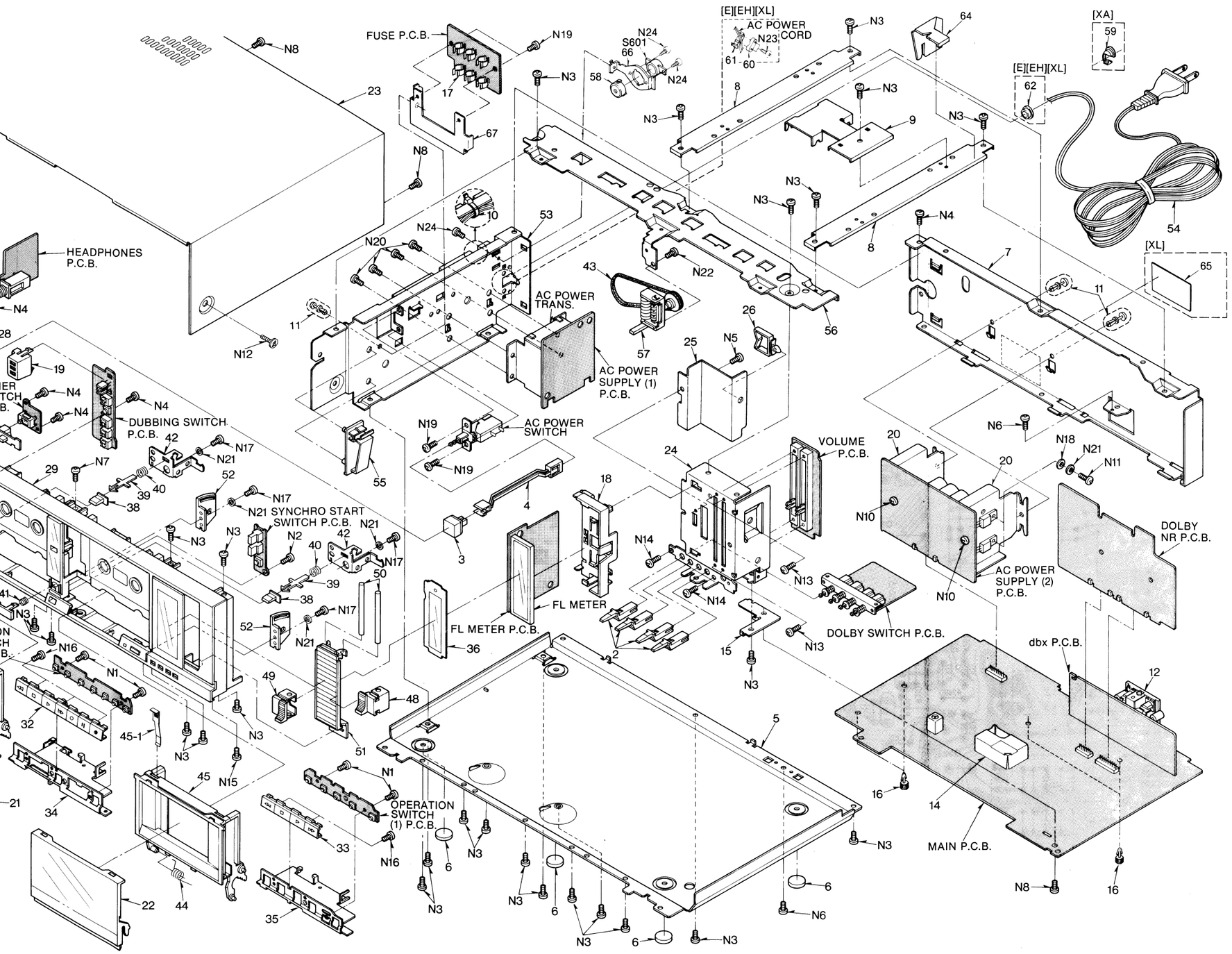
Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS		
101	QDB0347	Capstan Belt (Tape [1])
102	QDG1359	Sub Gear
103	QDG1309A	Main Gear
104	QML4025	Changing Lever
105	QDB0333A	Capstan Belt (Tape [2])
106	QDR1173	Supply Reel Table
107	QBC1449B	Reel Table Spring (L)
108	QXD0165	Takeup Reel Table Assembly
109	QTD1333	Cord Clamper
110	QMA4872	Mechanism Angle (R)
111	QXK3014	Chassis Assembly
111-1	QBT1742	Head Base Plate Spring
112	QML4026	Stop Lever
113	QBT1962E	Stop Spring
114	QMR2217	Eject Rod
115	QBT1947	Eject Rod Spring
116	QXF0252	Flywheel (A) Assembly (Tape [1])
117	QMA4869	Flywheel Angle
118	QMM1470	Thrust Retainer
119	QXU0387	Motor Assembly
120	QXU0373	FF/REW Motor Assembly
121	QXU0333	Drive Motor Assembly
122	QXG1076	Center Gear Assembly
122-1	QDG1307	Center Gear
122-2	QBH0151	Shelter
123	QXK3051	Head Base Plate Assembly
124	QMZ1322	Head Spacer
125	QBC1103A	Head Adjustment Spring
126	RJH4C01GZAD	Record/Playback Head (Tape [2])
127	RJH2C02GZAG	Erase Head (Tape [2])
128	QXL1802	Pinch Roller Assembly
128-1	QBN2118	Pinch Roller Spring
129	QMA4620A	Eject Angle
130	QBT2003EB	Eject Angle Spring
131	QDP1319B	Reel Table Boss
132	QMB1459	Reel Cap
133	QBC1512A	Reel Table Spring
134	QMA4871A	Mechanism Angle (C)
135	QWY2175G	Erase Head [Dummy (Tape [1])
136	QMR2218	Eject Lever Rod
137	QMA4870A	Mechanism Angle (L)
138	QMG0136	Tape Guide
139	QBC1448	Tape Guide Spring
140	RJH4C02GZAD	Playback Head (Tape [1])
141	QXF0253	Flywheel (B) Assembly (Tape [2])
142	QXM0185	Bearing Metal (A) Assembly (Tape [1])
143	QXM0186	Bearing Metal (B) Assembly (Tape [1])
SCREWS, NUTS & WASHERS		
N 51	XTN2+8B	Tapping Screw ⊕2×8
N 52	XTV3+8JFN	Tapping Screw ⊕3×8
N 53	XTV3+24BFN	Tapping Screw ⊕3×24
N 54	XSN26+10	Screw ⊕2.6×10
N 55	XTT3+6F	Tapping Screw ⊕3×6
N 56	XTN2+14B	Tapping Screw ⊕2×1.4
N 57	XSN2+18	Screw ⊕2×1.8
N 58	XTN3+6B	Tapping Screw ⊕3×6
N 59	QBW2046	Washer
N 60	QBW2012	Washer
N 61	QBW2008	Washer
N 62	XSN2+3	Screw ⊕2×3
N 63	QHQ1168	Step Screw
N 64	QBW2007	Washer
N 65	XSN2DW14	Small Screw ⊕2×1.4
N 66	QHQ1364	Step Screw
N 67	XTN2+6B	Tapping Screw ⊕2×6
N 68	QBW2130	Washer
N 69	XTV3+10BFN	Tapping Screw ⊕3×10

■ CABINET PARTS LOCATION



A	27 23
B	45−1 28 47 1 19 41 29 38 39 40 42 52 38 52
C	21 46 44 34 32 22 45−1 44 45 49

ARTS LOCATION



	23	11	67	17	10	58	66	57	43	56	61	60	8	9	8	64	62	11	59	54	65
1	19	41	29	38	39	40	42	52	38	52	39	40	42	55	53	50	36	3	4	18	2	25	24	15	26	20	20	7					
34	32	22	45—1	44	45	49	33	35	51	48	6	6	5	6	6	16	14	16	12														

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Areas

* [E] For all European areas except United Kingdom. * [EH] For Holland.	* [XL] For Australia. * [XA] For Asia, Latin America, Middle East and Africa areas.

Ref. No.	Part No.	Part Name & Description
CABINET PARTS		
1	QGT1642K	Timer Knob
2	SBC697	NR Button
3	QGO2399	Power Button
4	QMR2059A	Power Rod
5	SKU11200-1	Buttom Cover
6	SKL294	Case Foot
7 [E][EH]		
[XL]	SGP6381-1B	Back Chassis
7 [XA]	SGP6381-1A	Back Chassis
8	SUW2911	Center Angle
9	SMN1955	NR P.B. Holder
10	QTD1315	Cord Clamper
11	QKJ0609	Latch
12	QEJ5030C	Jack Board
13	SUS777	Earth Spring
14	QTS1586	Shield Board
15	SUW2895	P.B. Holder Angle
16	SHR9672	Tapping Support
17	⚠ SJT347	Fuse Holder
18	SHE179	Meter Holder
19	SHR9743	LED Holder
20	SMY864	Heat Shield Parts
21	SGE1723	Cassette Lid (A) Assembly
22	SGE1724	Cassette Lid (B) Assembly
23	SKC1730K99	Case Cover
24	SUW2891	Side Angle (R)
25	SMC1182	Shield Plate
26	SHR9752	Wire Clamper
27	SMN1947	Jack Angle
28	QMA4624	Headphones Angle
29	SGYSB66W-KN	Front Panel Assembly
30	SBC694	Dubbing Button
31	SBC695	Select Button
32	SBCSB66W-KN1	Operation Button (L) Assembly
33	SBCSB66W-KN2	Operation Button (R) Assembly
34	SUW2892-1	P.B. Angle (L)
35	SUW2893-1	P.B. Angle (R)
36	SDU264	Meter Filter
37	SBC700-2	M.S. Button
38	SBC696	Eject Button
39	SUW2896	Eject Rod
40	SUS778	Eject Spring
41	SUS784	Synchro Start Button Spring
42	SUW2897	Holder Angle
43	QDB0167	Counter Belt
44	QBN1961	Holder Spring
45	SGXSB66W-KN2	Cassette Holder (B) Assembly
45-1	QBP2006A	Tape Pressure Spring
46	SGXSB66W-KN1	Cassette Holder (A) Assembly
47	SBC698	Synchro Start Button
48	SBDSB66W-KN1	Knob (L) Assembly
49	SBDSB66W-KN2	Knob (R) Assembly
50	SUG85-1	Volume Shaft
51	SGXSB66W-KN	Slide Guide Assembly
52	QYF0627A	Damper Gear Assembly
53	SUH627-1	Side Angle (L)
54 [XL] ⚠	SJAG23	AC Power Cord
54 [E][EH] ⚠	SJA138-3	AC Power Cord
54 [XA] ⚠	RJA52YAK	AC Power Cord
55	SHR9751	Clamper
56	SUW2898-1	Mechanism Angle
57	SJN8	Tape Counter
58	QTWM0026	Switch Cover
59 [XA]	QTD1129	Cord Bushing
60 [E] [EH][XL]	QTD1164A	Cord Bushing
61 [E] [EH][XL]	QTD1322	Cord Clamper
62 [E] [EH][XL]	QBJ1425A	Cord Bushing
63 [E] [EH][XL]	QTW1307	Insulator
64	SMN1977	P.B. Holder
65 [XL]	SGT35010	Main Name Plate
66	QMA4603	Voltage Select Angle
67	QMA4804	Fuse Angle
SCREWS, NUTS & WASHERS		
N 1	XTN26 + 6BFN	Tapping Screw ⊕2.6×6
N 2	XSN26 + 8BN	Screw ⊕2.6×8
N 3	XTB3 + 8BFN	Tapping Screw ⊕3×8
N 4	XTV3 + 8BFN	Tapping Screw ⊕3×8
N 5	XTB3 + 6BFN	Tapping Screw ⊕3×6
N 6	XTB3 + 12BFZ	Tapping Screw ⊕3×12
N 7	XTS3 + 10BFN	Tapping Screw ⊕3×10
N 8	XTB3 + 8BFZ	Tapping Screw ⊕3×8
N 9	XTN3 + 8B	Tapping Screw ⊕3×8
N 10	XSN3 + 6FZ	Screw ⊕3×6
N 11	XSN3 + 8S	Screw ⊕3×8
N 12	QHQ1349K	Ornament Screw
N 13	XSS2 + 4	Screw ⊕2×4
N 14	XSN3 + 6S	Screw ⊕3×6
N 15	XTB26 + 8BFZ	Tapping Screw ⊕2.6×8
N 16	XTN26 + 6BFN	Tapping Screw ⊕2.6×6
N 17	XTN3 + 12	Tapping Screw ⊕3×12
N 18	XWA3B	Washer 3φ
N 19	XTV3 + 6BFN	Tapping Screw ⊕3×6
N 20	XTWQC3 + 6M	Tapping Screw ⊕3×6
N 21	XWG3	Washer 3φ
N 22	XTS26 + 6B	Tapping Screw ⊕2.6×6
N 23	XTS3 + 8BFN	Tapping Screw ⊕3×8
N 24 [E] [EH][XL]	XTN3 + 24B	Tapping Screw
ACCESSORIES		
A 1	QEB0125	Connection Cord
A 2 [XA][XL]	SQF12313	Instruction Book
A 2 [E][EH]	SQF12390	Instruction Book
A 3 [XA] ⚠	SJP9215	AC Plug Adaptor
A 4	SGK1910	Feature Plate
PACKINGS		
P 1	SPG5253	Inner Carton
P 2	SPS4570-2	Front Cushion
P 3	SPS4571-2	Rear Cushion
P 4	XZB50X65A02	Poly Sheet

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